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Food and Nutrition Security in Cariforum Countries

Ballayram and Fitzroy Henry^a

This issue of **CAJANUS** is based on a report on food and nutrition security in CARIFORUM countries prepared by the Caribbean Food and Nutrition Institute (CFNI) for the Food and Agriculture Organisation (FAO) in August 2007. It provides an overview of food and nutrition security in CARIFORUM within the context of the region's development challenges, including small size, vulnerability to natural disasters, international competitiveness, rules-based agricultural policy, and loss of preferential markets for traditional agricultural products. Country specificity is a challenging aspect of regional reporting since, notwithstanding general Regional characteristics, there is considerable diversity in the economies of the constituent states. Every effort has been made to reflect this reality.

Despite a general decline in poverty in recent years, several countries in the Region still experience high rates. This situation is further complicated by unequal income distribution, some countries having among the most skewed internal income distribution in the world. Furthermore, high levels of international debt in a number of countries cause severe fiscal pres-

ures and diversion of resources from government investments, especially in social programmes.

This issue of **CAJANUS** not only draws from but also contributes to the body of extensive available research on the region. The emphasis on nutrition and on the demand side of the food-security equation is a timely contribution to the discourse on food and nutrition security. The past and current regional discourse on food security emphasises the supply side with insufficient attention being paid to the links between the food, health, agriculture and other inter-related sectors of the economy. This omission has had deleterious effects on the health and nutrition status of the region's populations, with the prevalence of nutrition-related chronic diseases now being acknowledged as the main public health problem in the Caribbean. Beyond this and drawing from various strands of the existing literature, this issue of **CAJANUS**, like its parent report, presents a holistic and integrated view of the critical factors that combine to influence food and nutrition security in the Region.

This issue is particularly timely at this juncture in world political

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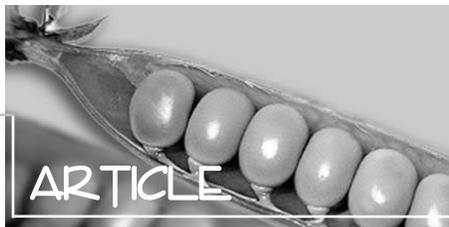
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economy, especially in light of the current instability in food production due to the unstable and rising price of oil and petroleum-based products. Further complications derive from the associated global conflicts and increasingly uncertain world weather and climate patterns, which many scientists attribute to the effects of global warming. In addition, many analysts attribute a large part of the growing world hunger and food shortages to the global trend towards using agricultural products for alternate fuel sources.

The CARIFORUM region consists of mainly small island states, many of which are working towards the creation of CARICOM Single Market and Economy (CSME). The region is not shielded from this worsening global situation, made worse by recent slowing of the US economy due to the crash in real estate and finance markets. This global crisis in food security has made more urgent the need to create policies and implement plans to strengthen food and nutrition security in the Region, and create a safety net for the most vulnerable. While recent available data and research do not suggest that the region as a whole faces an immediate accelerated hunger-related problem, there is ample data to support concern that under-nourishment and under-nutrition could become chronic problems for the most vulnerable and at-risk sectors in these nations, viz., the chronically

poor and indigent; the unemployed and under-employed; single household families with many dependents; people living with chronic communicable and non-communicable diseases; children; and the elderly. Historically, poverty in the Region has been rural based, but increasingly, high levels of poverty can be found among households and individuals in urban areas and depressed inner-city communities due to unemployment and under-employment.

With the worrying trend among the region's nationals to eat more fat, oil and sugar-based products rather than the traditional more balanced diets with fruits, vegetables and ground provision (starches), the incidence of chronic non-communicable diseases has become the region's greatest health challenge and a drain on limited resources. Studies and statistical reports on food security are now an invaluable resource for regional initiatives and regional governments as they plan for a future when all the citizens will be assured a balanced diet on a regular, timely and guaranteed basis. That is the ultimate goal that all sectors (health and nutrition, agricultural, trade and industry, tourism and the service industries, economic, security and justice, and social services) must work to achieve. It is towards this goal that this issue of CAJANUS presents an over-view of food and nutrition security in CARIFORUM Countries.



Conceptual Issues

Food Security and Vulnerability

The conceptual and analytical framework used in this study is guided by two main considerations:

- A definition of food security that incorporates food availability, accessibility, consumption/utilization of food and the stability of these components; and
- A focus on vulnerability, which is grounded in the FAO's Food Insecurity and Vulnerability Information and Mapping Systems (FIVIMS) framework, and complemented by insights from the sustainable livelihood approach.

These considerations are important for two reasons. First, the disease profiles in the Region demonstrate that non-communicable diseases (NCDs) are the main public health problems. These NCDs cut across socio-economic, spatial and demographic lines, and are associated with a sedentary life style, and changes in diets which can be linked to domestic and import food policies. Hence, these food, nutritional and epidemiological factors provide strong arguments

for a conceptualization of food security that combines food access, availability, and nutritional and health considerations, and for exploring the links among agriculture, health and nutrition.

Food Security

The notion of food security has evolved through a sequence of definitions and paradigms over the years. In the 1960s, the focus was on self-sufficiency; then, following the Green Revolution in the 1980s, which increased food production (food availability), food security was broadened to include both physical and economic access to food supply. In the 1990s food and nutrition security as a human right was internationally reaffirmed and the 1996 World Food Summit and the 2000 Millennium Summit, at which the Millennium Development Goals (MDG) were formulated, committed national Governments to a more proactive role in this area. In the 2000s, food security integrated vulnerability, risk coping, and risk management (Weingärtner, 2005).

According to an often-quoted definition, food security is achieved when:

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“all people at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life”. (World Food Summit, 1996).

There are several important aspects of this definition that must be emphasized:

- First, this concept of food security embodies several major components—food availability, accessibility, consumption/utilization and the stability of these three components (Wein-gärtner, 2005).
- Second, it is necessary that adequate quantity and quality of food (nutritionally and culturally acceptable) must be available at all times for a household or community to be food secure. Households inevitably face seasonal and intra-household changes in their level of food security and internal and external shocks that may shift them from food-secure to insecure in a short period. Thus, the goal must be for households to reach an adequate level of food security whereby shocks or temporary setbacks (crop loss or sickness) can be absorbed.
- Third, access to food can be in the form of producing a sufficient amount of nutritious food or being able to earn

enough money to purchase an adequate and nutritious amount of food on a consistent basis. Self-sufficiency of production and food security are not necessarily the same, particularly among individuals that do not grow any of their own food, and yet are food-secure.

- A final note on the definition of food and nutrition security relates to the importance of the links between each of the general elements. Lovendal (2004) sums up this interrelationship thus:

“Having access to food means little if poor health impinges on people’s ability to utilize the food they consume. Likewise, earning income to purchase food matters less if insufficient food is available in markets. And a well-stocked market is irrelevant to those that do not earn income to purchase food.” (Lovendal, 2004 p. 1)

Vulnerability

Food insecurity is used to denote situations when people are undernourished as a consequence of physical unavailability of food,

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their lack of social or economic access to adequate food, and/or inadequate food consumption and utilization. Thus, people who are food-insecure are those:

- whose food intakes fall below their minimum calorie (energy) requirements;
- who exhibit physical symptoms caused by energy and nutrient deficiencies resulting from inadequate or unbalanced diets; and
- whose bodies exhibit an inability to use food effectively because of infection or disease (FAO, 2000).

In this context, the discussion on vulnerability highlights the full range of factors that place people at risk of becoming food-insecure. These risk factors determine the degree of vulnerability of individuals, households or groups of people and their resilience or abilities to cope with or respond effectively to stressful situations. These are factors that may affect the household's assets, strategies or activities at different times and include external and internal factors. The external factors include:

- **Trends:** changes over time that affect the production, exchange and consumption activities of the household such as decrease in access to markets, increased

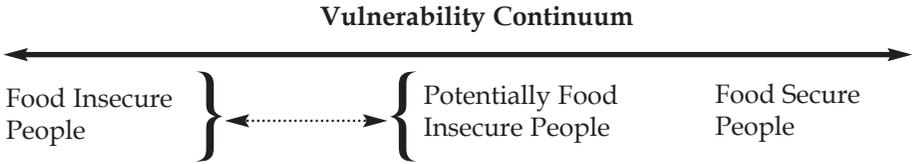
population density, rise in environmental degradation etc.

- **Shocks:** sudden and forceful changes in the external environment that have a dramatic (and usually negative) impact on people's livelihoods such as natural disasters, currency devaluations etc.
- **Seasonality:** changes in the availability of and access to resources and activities, in people's status, and in processes that occur on a seasonal basis, such as seasonal demand for agricultural output and seasonal diseases etc.

The internal factors are the characteristics of people, their ownership and access to assets (human, social, natural, financial and physical capital), the general conditions in which they live (including livelihood activities, intra-household distribution of resources, and access and use of health facilities), and the dynamics of the household that restrict their ability to avoid becoming food-insecure in the future.

The literature on vulnerability makes a distinction between persons who are potentially food insecure (i.e., people living on the edge of food security), and those who are food-insecure (i.e., persons who cannot meet their minimum food needs).

Figure 1
The Vulnerability Continuum



Adapted from FAO (2000).

Persons who are potentially food-insecure are not food-insecure at the time when their food security status is assessed, but they risk being exposed to shocks and - given their limited capacities to manage these shocks - this makes them vulnerable to food-insecurity. Persons who are able to recover from shocks are said to be transitory food-secure. Within the food-insecure group there are persons who are below a food security threshold who are unlikely to emerge from this state, given their assets and management capabilities. These persons are considered to be chronically food-insecure.

The conceptualization in Figure 1 depicts the dynamic nature of vulnerability to food insecurity. This conceptualization is supported by several studies showing that over time it is quite possible for people to move in and out of food-

insecurity (Gaiha and Deolalikar, 1993; Townsend, 1994).

The Food Health Link and Nutrition/Epidemiological Transition

This definition of food security is particularly relevant to Caribbean countries that are currently experiencing rapid dietary/nutritional, epidemiological and demographic transitions. The dietary/nutritional transition is observed in the shift from diets based on indigenous staples, local fruits, vegetables, and legumes, to more varied energy-dense diets based on more processed foods/beverages, more of animal origin, more added sugar, fats, and often more alcohol. With regard to the epidemiological transition, nutrition-related chronic non-communicable diseases (NCDs) such as diabetes, high blood pressure,

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stroke, heart diseases, and cancer have replaced malnutrition and infectious diseases as the major public-health problems. Further, the burden of disease, disability, and premature death has shifted from young children to adults in the productive years of their life. Unbalanced diets and a sedentary lifestyle have increased the prevalence of chronic NCDs, even among the poor. For the past two and a half decades there has been a dramatic increase in the prevalence of obesity throughout the region, principally in adults, but also to some extent in adolescents. Associated with obesity is the concomitant increase in nutrition-related chronic diseases.

With regards to the demographic shifts, the Caribbean's aggregate urban population has increased continuously over the past four decades and has overtaken rural population levels since the early 1980s. This trend continues. Further, the rate of urban population increase since the early 1980s has exceeded that in the earlier period. With the exception of St. Kitts and Nevis, St. Lucia and Belize, this is also the pattern for the individual countries in the CARIFORUM Region (UN, 2004). As people move to urban areas several factors combine to create

different patterns of food supply and demand. These include, inter alia, urban occupations, population concentrations, transportation networks, food marketing systems, etc. Consequently, food supplies, diets and body compositions change (Ballayram et. al., 2002).

Despite considerable economic progress in the post-independence Caribbean, poverty and inequalities in income and access to resources are at high levels and continue to be major challenges. Poverty, nutrition and health status are inter-related. Poverty constrains the quantity and/or quality of food consumed and leads to hunger and malnutrition. Poor quality diets deprive the body of nutrients and negatively influence the body's immune system, leading to greater severity, a higher incidence, and more prolonged duration of illness (Beisel, 1984; Campos, et al., 1987; Mahalanabis, 1991). Poverty is multi-dimensional and comprises both income and non-income characteristics. Non-income characteristics of poverty include: limited access to education, health; insufficient consumption; and vulnerability. This is reinforced by inequalities in income, health and livelihood assets.

Food Availability, Accessibility and Consumption/Utilization in Cariforum Countries

FOOD AVAILABILITY, ACCESSIBILITY AND CONSUMPTION/UTILIZATION

Food Availability

This analysis of food availability in CARIFORUM utilizes food balance sheet data of the Food and Agriculture Organization (FAO). These food balance sheets present a comprehensive picture of the trends in a country's overall food supply for a given period. The FAO data are reported at different levels of aggregation and in several forms and units (major food groups, specific foods, imports, exports, domestic uses, macronutrients, total calories, calories/caput/day, grams, etc). For purposes of this analysis, data from three-year averages for each of the five decades over the period 1961-2002 are analysed as representative samples of food supply over this period. In this context, food supply is defined as: domestic production + (imports - exports) + changes in stocks. It is important to note that this supply represents the amount of food that is available for potential domestic consumption. The amount of food actually consumed may be lower than shown in the food balance sheet depending on such factors as

distribution, plate-wastes, losses in food preparation, etc.

Regional Level Data

The data indicate the following food availability patterns for the Region as a whole (see Tables 1 and 1.1, below and Figures 1-7-Appendix 1):

- Total food caloric availability (calories/caput/day) has been increasing since the 1960s, and is in excess of Recommended Population Goals (RPG).
- Carbohydrates, protein, fats and sweeteners have been increasing and are all above RPG.
- The supply of fruits and vegetables, though increasing sharply over successive decades, consistently fell way below RPG throughout the review period.
- The supply of staples (cereals plus starchy roots) has been increasing, but is lower than the RPG.
- The bulk of the available fruits and vegetables were produced within the Region, while most of the available staples (predominantly cereals) were imported. Finally, except in 2000-2002, most of the available sweeteners were locally produced.

Table 1
Cariforum Food Availability (Calories) Selected Periods

Food Availability Calories	Availability ¹ (Calories/caput/day)		RPG ²	2000-02 Calories Availability Relative to RPG (%) (Surplus (+) or Deficit (-))
	1991-03	2000-02		
Total Food Calories	2,825	2,963	2,250	32 (+)
Carbohydrates	1,766	1,825	1,462.50	25(+)
Fat	746	802	562.5	43(+)
Protein	313	336	225.0	49(+)

¹Calories/caput/day; ²Recommended Population Goal;

Source: FAOSTAT. www.fao.org. August 2006.

Table 1.1
Availability of Selected Food Groups in Cariforum (Calories)

Availability of Selected Food Groups (Calories)	Availability ¹ (Calories/caput/day)		RPG ²	2000-02 Calories Availability Relative to RPG (%) (Surplus (+) or Deficit (-))
	1991-03	2000-02		
Fruits/Vegetables	167	197	225	12 (-)
Sweeteners	393	424	424	136(+)
Staples ³	967	967	974	4(-)

¹Calories/caput/day; ²Recommended Population Goal; ³Staples =Cereals + Starchy Roots.

Source: FAOSTAT. www.fao.org. August 2006.

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Country Level Data

At the individual country level, and looking specifically at the two more recent periods (viz., 1991-93 and 2000-02) there were some similarities with, and variations from, the patterns of food availability observed for the Region as a whole. With regard to similarities, all CARIFORUM countries met the RPGs for carbohydrates and sweeteners. Also, with the exception of Haiti, all countries met the RPG for total food calories and fats. In addition, only the Dominican Republic and Haiti failed to meet the RPG for protein. In the case of fruits and vegetables, only six CARIFORUM countries (The Bahamas, Belize, Dominica, Jamaica, Grenada and St Lucia) were able to meet the RPG. Moreover, with the exception of Barbados and St Kitts and Nevis, the greater proportion of fruits and vegetables available are from domestic production. With regard to staples, the following seven countries do not meet RPG: Antigua and Barbuda, Barbados, Dominica, the Dominican Republic, Grenada, St Kitts and Nevis and St. Lucia. With the exception of Guyana, Belize, and Suriname, CARIFORUM countries' imports account for the larger proportion of staple supply.

Regional Food Imports

Food imports are an important factor in food availability, especially for countries that do not have adequate land resources. Table 2

shows that the Region's food import bill was US\$1.553 billion in 1995 and US\$2,389 billion in 2004, an increase of 54 per cent in nine years (FAO, 2005b). At the country level the value of food imports appears to correlate positively with relatively large population size (Jamaica, the Dominican Republic, Haiti) and national wealth (Bahamas, Barbados and Trinidad and Tobago). With the exception of the Bahamas, food imports followed a stable and slightly upward trend. The Bahamas food imports began to increase significantly in 2004 following a previous declining trend. Two factors appear to drive this increase in food imports in the Bahamas: increased tourist arrivals and the population increase from inflows of migrants from Haiti.

The ratio of food imports to total exports for the Region averaged 16 per cent over the period 2000-2004 and has been trending slightly downward (FAO, 2005b). There were some variations to this trend among the countries. For example, Guyana, Dominican Republic, Antigua & Barbuda, and Suriname had smaller ratios of food imports to total exports than the overall average for the Region and the ratios were trending downward.

The other countries with higher ratios than the overall average, and trending upwards include St. Vincent and the Grenadines (124 percent in 2004 up from 55 percent in 2000) (FAO, 2005b).

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Table 2
CARIFORUM Food Imports (US\$'000)

Countries	1995	2000	2001	2002	2003	2004
Antigua/Barbuda	16,809	24,422	19,539	21,288	23,549	21,697
Bahamas	157,172	307,294	270,660	202,481	167,166	196,769
Barbados	85,609	96,107	131,935	132,598	142,543	110,115
Belize	34,079	60,465	37,610	38,764	39,391	43,230
Dominica	16,247	23,167	21,223	20,553	21,590	22,288
Dominican Republic	274,541	378,504	386,154	505,097	452,869	534,459
Grenada	22,443	32,442	26,851	35,411	29,717	24,150
Guyana	52,503	65,437	73,101	74,919	68,341	71,746
Haiti	268,004	307,832	288,200	357,068	364,471	441,233
Jamaica	259,397	315,258	400,203	379,940	355,799	386,671
Montserrat	na	3,256	3,173	3,279	2,917	2,793
St. Kitts/Nevis	15,111	27,129	24,968	23,907	25,504	30,000
St. Lucia	49,314	66,474	59,758	56,244	66,607	41,234
St. Vincent/ Grenadines	25,847	23,201	25,275	37,502	36,106	41,872
Suriname	50,428	69,569	71,979	61,482	61,158	69,267
Trinidad/Tobago	225,214	259,317	283,585	259,448	300,859	351,501
Total	1,552,718	2,059,874	2,124,214	2,209,981	2,158,587	2,389,025

Source: FAOSTAT: www.fao.org. July, 2007.

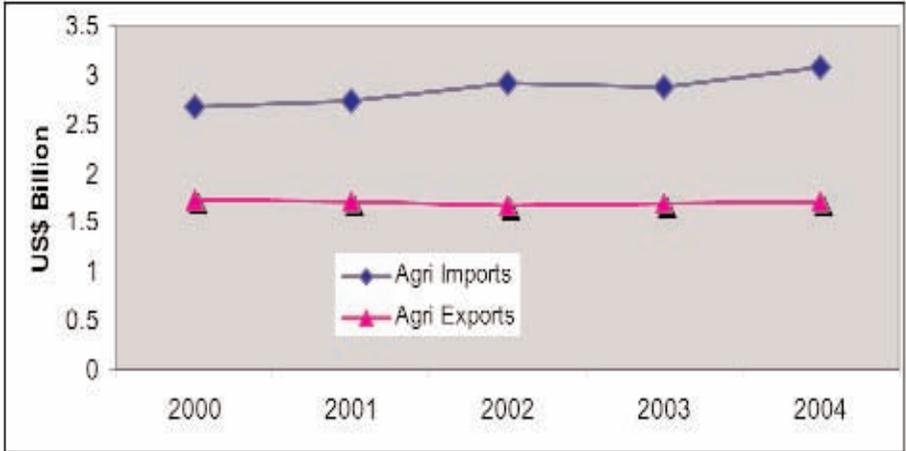
With regard to food trade (expressed as the ratio of the value of agricultural imports to agricultural exports), the Region as a whole showed a negative trade balance (i.e., total agricultural imports greater than total agricultural exports), of 41 per cent over the period 2000-2004 (Figure 1). There were some variations among countries in respect of this negative food trade balance. First, only two countries (Belize and Guyana) showed positive food trade balances. Second, the gap

between food imports and agricultural exports is very high (ranging from 80 to 90 per cent) for four countries (Antigua and Barbuda, Bahamas, Haiti and St Kitts and Nevis), and high to moderate (60-79 per cent) for the other countries (FAO, 2005b).

The inter-temporal dimension of food security requires the stability of food availability, accessibility, and consumption/ utilization. In terms of food availability, total food calories in the Region and in individual countries have

Figure 1

CARIFORUM Food Trade Balance, 2000-2004



Source: FAOSTAT. www.fao.org (July, 2007).

been increasing over the years. However, several factors combine to compromise the stability of food availability in the Region. These include the following:

- Seasonality and natural disasters:** During the rainy season food production is affected by pest and disease infestations, also flooding and glut on the market for vegetables. On the other hand, during the dry season, production is affected by lack of water and increased cost of production due to irrigation use. Further, hurricanes, major floods and droughts adversely affect food availability. Moreover, the Region does not have a tradition of storing large food stocks

and this poses problems for food availability when natural disasters occur.

- Dependence on food trade:** As indicated above, with the exception of Belize and Guyana, CARIFORUM countries are net food importers. Since many of the Region's economies depend on agriculture for export earnings, and given the losses of preferential markets, there is potential for reduced capacity to produce and to earn foreign exchange to finance food imports. Moreover, the Region's participation in an increasing global economy exposes the countries to potentially severe disruption in trade flows, and consequently import-earnings

and food imports. Terrorist activities (e.g., such as “9/11”), avian flu, mad-cow disease, etc. are examples of possible exposure to these vulnerabilities.

- **Scarcity of labour and an aging farmer population:** People, especially the young, are not attracted to working on farms due to the low returns and wages. With an aging farmer population (estimated average at 55-60 years) this poses a serious threat to the stability of food availability.
- **Praedial larceny:** Throughout the Region, this is a serious deterrent to food production.
- **Lack of capital for agricultural activities:** Because of the risks and uncertainty associated with agricultural enterprises, most of the financial institutions are not accommodating to this sector.

Finally, it is important to note that even if sufficient food is both available and accessible the household still has to make decisions concerning what food is to be purchased, prepared and consumed and how the food is allocated within the household. In households where distribution is unequal, even if the measured aggregate access is adequate, some individuals may suffer from food deficiency. Equally important, if the composition of the consumed

food is unbalanced, in the sense that the macronutrient (i.e., total calories, protein, fats/oils, sweeteners, etc), micronutrient (i.e., vitamins, iron, etc) and fruits and vegetable consumption are at variance with dietary guidelines for healthy living, then food security is compromised. As indicated earlier in the discussion on the data in Table 2, there is adequate availability of food calories in the Region but an excess of fats and sweeteners and deficit of fruits and vegetables in some countries. In such cases, over time the consumption imbalance must be corrected.

Accessibility

Access is ensured when all households and all individuals within those households have sufficient resources to obtain appropriate foods for a nutritious diet. It is dependent on the level of household resources - capital, labour, and knowledge - and prices. More important is the ability of households to generate sufficient income which, together with own production, can be used to meet food needs. At the national level, evidence suggests that the nutritional profiles of most CARIFORUM countries, while fairly good, can be improved, since pockets of malnutrition and micronutrient deficiencies exist in several countries. This implies that accessibility and utilization/

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consumption are critical elements for food security in the Region. Indeed, rapid urbanization and imbalances in diets have resulted in the co-existence of undernutrition and obesity within many households in the Region.

For purposes of this study, accessibility by households and individuals to food in the region will be gauged by relying on information on the following:

- Hunger/food deprivation (under-nourishment);
- The proportion of the minimum wage to purchase a minimum cost nutritious basket of food;
- Unemployment, poverty and income inequality;
- Social safety net programmes; and
- Food aid.

The food balance sheet data as discussed suggest adequate availability of food energy at the national level, but high levels of poverty and income inequality may be constraining access for some sections of the population in each country. Moreover, although food balance sheets for the Region indicate that food availability is above recommended population goals, this is not a cause for complacency. First, food insecurity can exist side by side with ample availability of food. Second, scholars who have compared actual household and individual

food intake data with food balance sheet data estimate that the latter overestimate food availability by 20-27 per cent over actual consumption levels (Popkin, Horton and Kim, 2001). Third, food balance sheet data do not measure food distribution across geographic Regions or even among members of the same households. Finally, trade liberalization and its attendant reduction of trade barriers, accent on competitiveness, and removal of preferential quotas, all with possible negative impacts on Caribbean agriculture, pose major concerns for policymakers throughout the Region. So although national food insecurity has declined (in the sense that food is available at the national level to meet Recommended Population Goals), the threat of its resurgence is still lurking and may erupt as a serious problem.

Food Deprivation/Under-nourishment

The FAO measure of hunger or food deprivation (FAO, 2003), also referred to as the prevalence of undernourishment, seeks to capture the proportion and number of people whose food access is inadequate in terms of dietary energy requirement norms. Persons with food consumption below the energy requirement norm are considered under-nourished (“under-fed”). The measure is intended to

reflect the role of both aggregate food supplies and household incomes in determining food insecurity. The FAO measure focuses on hunger rather than undernutrition (or malnutrition), which has a broader nutritional connotation. Table 3 shows the percentages and numbers of persons who were undernourished in three selected periods in CARIFORUM countries. The number of persons who were food deprived increased in Dominica and the Dominican Republic and remained fairly uniform for Barbados over the three periods. For all other countries, food deprivation decreased, although the total number of persons is relatively high. For example, 7.296 million persons were undernourished in 1990-92, 7.220 in 1995-97 and 6.686 in 2001-03.

Minimum Cost Diet

The CFNI has utilized a nutrient cost method to estimate a low-cost nutritionally balanced basket of foods in selected countries. The food basket consists of a culturally acceptable and representative selection of food items normally consumed by households in the country. The cost of the food items reflects the prevailing prices (and by extension, domestic inflation) at the time the estimate of the cost of the food basket is made. The cost of this basket as a percentage of the

minimum wage can be used to assess the accessibility of low-income earners to basic foods.

Analysis of the data for selected countries over the period 1997-2008 is shown in Figure 2. The results indicate that for countries such as Guyana, Jamaica and Grenada, about 31 per cent of the minimum wage was required to purchase the food basket in 2004 compared with 41-57 per cent in 1999. For Antigua and Barbuda, Montserrat and St. Kitts and Nevis 14-22 per cent of the minimum wage was required to purchase the food basket in 2004 compared with 16-32 per cent in 1999. These declines in the percentage of the minimum wage required to purchase the food basket over the review period were perhaps due to increased efforts on the part of Governments to keep some form of parity between the minimum wage levels and basic food costs. However, nutrient cost analysis of the 2008 data demonstrates that, with the exception of Grenada, rising prices are reversing the gains made in the past in the purchasing power of the minimum wage relative to the minimum cost balanced diet. Additionally, the combination of high levels of unemployment, poverty and income inequality constrains food accessibility in the Region. The following sub-section elaborates on these variables.

Table 3

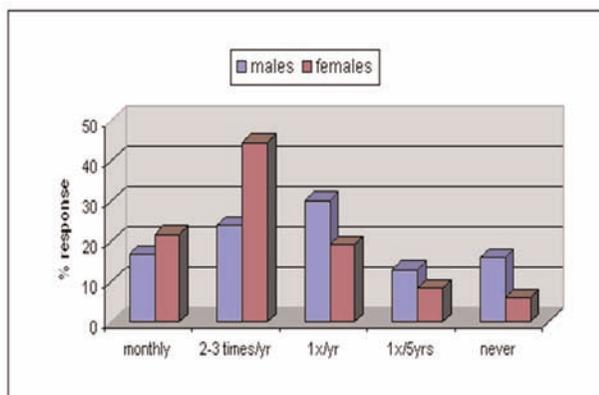
CARIFORUM – Food Deprivation/Undernourishment

Country	1990-92		1995-97		2001-03	
	%	(000)	%	(000)	%	(000)
Bahamas	9	22.7	14	39.2	7	21.3
Barbados	<2.5	na	3	8.7	<2.5	na
Belize	7	12.7	6	12.1	5	11.4
Dominica	4	2.9	7	4.9	8	5.9
Dominican Republic	27	1.9 ¹	26	2.0 ¹	27	2.3 ¹
Grenada	9	7.3	7	5.8	7	5.9
Guyana	21	253.1	12	89.9	9	69.3
Haiti	65	4.6 ¹	59	4.5 ¹	47	3.8 ¹
Jamaica	14	338.7	11	281.3	10	255.7
St. Kitts/Nevis	13	5.5	19	8.2	11	4.5
Saint Lucia	8	10.5	7	9.9	5	7.5
St. Vincent/ Grenadines	22	24.3	27	30.7	12	14.2
Suriname	13	54.2	10	41.8	10	42.1
Trinidad and Tobago	13	161.4	15	187.3	11	145.2
TOTALS (Million)		7.296		7.220		6.686

Source: FAOSTAT www.fao.org (June, 2007; ¹ million).

Figure 2

Percentage or Minimum Wage Required to Purchase a Low Cost
Nutritionally Balanced Basket of Food (Selected Countries)



Source: Estimates by CFNI, 2008.

Unemployment, Poverty and Income Inequality

Official unemployment among thirteen CARIFORUM countries between 2000 and 2005 ranged from 8 to 23 per cent. The unemployment levels can arbitrarily be divided into two groups: 8-13 per cent unemployment (Antigua and Barbuda, the Bahamas, Barbados, Belize, Grenada, Guyana, Jamaica, and Trinidad and Tobago); and 15-23 per cent (Dominica, the Dominican Republic, St Lucia, Suriname) (FAO, 2004, 2005c). Available data suggest that on average for the Region 22.6 per cent of the labour force was employed in agriculture and 59.4 per cent in services, with the remainder in industry (World Bank, 2005b). Haiti and Dominica have the largest proportion of their labour force employed in agriculture – 66 per cent and 40 per cent, respectively. Generally, in countries relying heavily on agriculture to provide employment, poverty is usually relatively high as borne out by Haiti having levels of poverty of 78 per cent or more. Similarly, high levels of poverty are observed in Belize (33 per cent overall), with poverty levels above 40 per cent in some rural areas (e.g., Toledo has poverty levels of approximately 60 per cent). The pattern of higher poverty levels in

rural areas compared to urban areas is common in the Region and is reflected in lower incomes in rural areas that are particularly dependent on subsistence agriculture.

Despite considerable economic progress in the post-independence Caribbean, poverty and inequalities in income and access to resources are at high levels and continue to be major challenges. Table 4 provides information on poverty rates and income inequality in the Region. The percentage of individuals estimated to be living below the absolute poverty line¹ ranges from 8 per cent in Barbados to 78 per cent in Haiti. Within this wide range there are some general conclusions that can be drawn and characteristic features noted about poverty in the Region:

- First, Haiti has the highest poverty and indigence² rates and is also one of the most appalling cases of extreme deprivation.
- Second, natural disasters which are very frequent in the Region can trigger sudden increases in poverty and impact disproportionately on the poor because they lack resources to cope in times of need (Ramussen, 2004).

¹The absolute poverty line is a threshold below which persons cannot meet food and basic non-food needs.

²The indigent poverty line is a threshold below which persons cannot meet basic food needs.

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- Third, there is the enormous heterogeneity of poverty levels across the countries of the Region. Haiti, Belize, Dominica, the Dominican Republic, St Lucia, Grenada, Guyana, St Kitts & Nevis, St Vincent and The Grenadines, and Suriname have high poverty rates. At the other extreme, absolute poverty levels in Antigua and Barbuda, Barbados and the Bahamas are as low as and comparable to those in highly developed countries.
- Fourth, poverty rates are higher in rural areas than in urban areas. This is the case in Jamaica, Guyana, Belize, Dominica, Grenada, St. Kitts & Nevis, St. Lucia, and St Vincent and The Grenadines (UN, 2005).
- Finally, in terms of trends, available data show that, at least in Guyana and Jamaica, poverty rates decreased significantly in the 1990s, falling from 43 per cent in 1993 to 35 per cent in 1999 in Guyana and from 28 per cent in 1990 to 14.5 per cent in 2005 in Jamaica.

Recent research shows that reducing inequality can actually reduce the number of households in poverty but those efforts to achieve this goal through growth must be complemented by policies to reduce inequality (Cornea and Court, 2001; van der Hoeven, 2000; Lustig, et

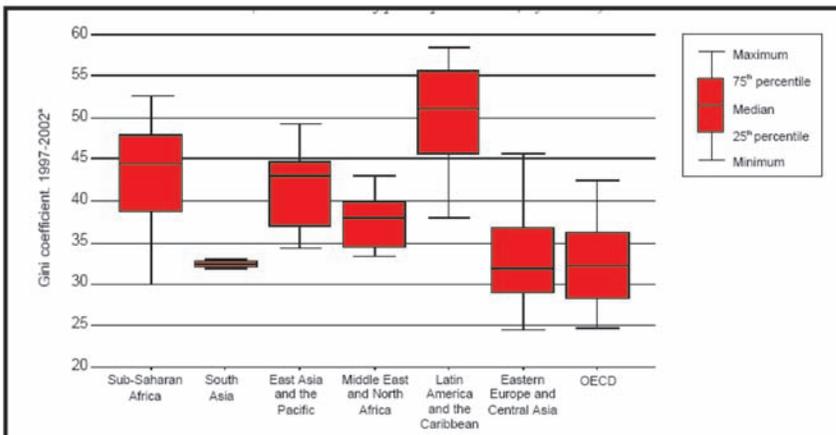
al.,2002; Birdsall and Szekely, 2003). A standard measure of inequality is the Gini coefficient, which ranges between 0 (absolute equality) and 1 (one person/household receives all the income). The Gini coefficients reported in Table 4 and shown in Figure 3 indicate relatively high levels of income inequality. High inequality means that prosperity fails to benefit many segments of society, despite growth. Moreover, if slow growth persists in any given country, then it stands to reverse its progress in poverty reduction and strain the country's democracy and social stability (World Bank, 2006b).

CARIFORUM countries with relatively high poverty and unemployment levels are more likely to have challenges with food security at the household and individual levels. Many of the poor are found mainly in rural areas and also among indigenous groups in remote areas. Increasingly, however, high levels of poverty can be found among households and individuals in urban areas and depressed inner-city communities. Moreover, among the very poor are those households with high dependency ratios (the number of persons in the household as a proportion of income earners in the household), households with large numbers of children, persons living with HIV/AIDS, the elderly and the homeless.

Table 4
Population Living Below the Poverty Line

Country	Year of Survey	Indigent Poverty Line	Absolute Poverty Line	GINI Coefficient
Antigua/Barbuda	1995	na	12	.53
Bahamas	1999	na	8	.52
Barbados	1996	1	14	.39
Belize	2002	10.8	33.5	.51
Dominica ¹	2002	15	39	.35
Dominican Republic ¹	2004	15.9	42.2	.52
Grenada ¹	1999	10.5	28.8	.45
Guyana ¹	1999	19	36	.42
Haiti ¹	2005	54	78	na
Jamaica	2005	na	14.8	.38
St. Kitts/Nevis	2000	11.0	30.5	.40
Saint Lucia	2006	1.6	28.8	.42
St. Vincent/Grenadines ¹	2002	10.8	33.5	.40
Suriname	2002	na	70	na
Trinidad and Tobago	1992	11	21	.42

Figure 3
World Regions: Gini Coefficient, 1997-2002 (Concentration of Per Capita Income, by Deciles)



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Social Safety Net Programmes in CARIFORUM countries

Safety net programmes have two key functions in economic policy viz., to redistribute income and resources to the needy in society, thereby helping them to overcome short-term poverty; and to help households manage risk. Social safety net programmes are therefore a means of enabling families that are vulnerable to food insecurity to attain access to adequate food and nutrition. Social programmes have a long history in the Region, dating as far back as the "Poor Law" in the 19th century (Public Assistance, Old Age pension). The generalized economic crisis in the Region in the 1970s, followed by the structural adjustment programmes in the late 1980s, generated more interest in social safety net programmes as means of cushioning the effects of austerity measures undertaken by Governments. Perhaps the most significant development in social safety nets is the current attempt to place conditions on the cash transfers (e.g. school-feeding programmes in which children must record 85 per cent school attendance and receive vaccination, and parents must attend PTA meetings) and to integrate several areas - such as health and education. Jamaica's PATH (Programme of Advancement Through Health and

Education) and Guyana's SIMAP (Social Impact Amelioration Programme) are examples of this. Box 1 provides a brief description of safety net programmes in CARIFORUM countries.

Food Aid: Haiti - A Special Case

In the CARIFORUM Region, food aid from the World Food Programme (WFP) extends only to Haiti and the Dominican Republic. Most of the other countries have benefited from food aid in the past (e.g., the US PL 480 programme), but only Haiti currently receives food aid on a regular basis.

Two major food aid programmes, sponsored primarily by the United States Agency for International Development (USAID), have contributed (and still continue) significantly to the overall food availability in Haiti. These food aid programmes are (1) the "Title II Food Assistance Programme" and (2) the "PL-480 Title III/Food for Development Programme". The Title II programme aims were (on establishment) to increase household level food security in seven of the 10 departments in the country from 2002 to 2006. All four implementing partners - CARE, Catholic Relief Services (CRS), Save the Children/US, and World Vision International (WVI) - focus on women and children most vulnerable to malnutrition, poor farmers in food-

Box 1: Social Safety Net Programmes in the Region

Social programmes typically combine three components: (i) social assistance (typically for persons whose incomes fall below a specified threshold); (ii) social insurance (e.g. a pension); and (iii) categorical transfers (support to 'deserving' groups through some means test). Social safety nets in the Caribbean consist of a combination of these types of transfers. The main ones are:

- (i) School-Feeding Programmes (This is typically a food-based transfer that is conditional upon certain behaviours of the beneficiaries, such as regular school attendance of their children or regular health centre visits).
- (ii) Benefits-in-Kind (This includes transfers: education-related (school-fee waivers, scholarships), health-related (user-fee waivers), housing-related (home-improvement support, rental subsidy) and direct provision of food parcels).
- (iii) Supplemental Feeding and Micronutrient supplementation (designed for targeted groups such as children, pregnant women and lactating mothers).

CARIFORUM countries with the above social safety net programmes:

- School-Feeding and Benefits-in-Kind Programmes (Guyana, St Vincent and the Grenadines, Jamaica, Grenada, Trinidad and Tobago, St Kitts and Nevis, Dominica, Barbados, Bahamas, Belize, and St Lucia).
- Supplemental Feeding (Clinic). (Guyana, St Vincent & the Grenadines and Jamaica).
- Micronutrient Supplementation. (Guyana and Jamaica).

insecure areas, primary school children, chronically food-insecure orphans, and the institutionalized elderly and sick. The components of this five-year programme (total value of US\$157,581,686) included "Health and Nutrition (53 per cent)", "Agriculture (23 per cent)", "Food and Education (15 per cent)", and "Social Safety to the Neediest (9 per cent). The programme targeted food

supplements to orphans and abandoned children throughout the country as well as the elderly and sick living in institutions, including families affected by HIV/AIDS. It also responded to emergencies such as the four disasters in 2004-civil disturbance, drought, and two separate flash floods. The programme continues.

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The PL-480 Title III Food for Development Programme played an important role in Haiti's economic and social development. The programme consisted of grants to the Interim Government of Haiti (IGOH) of basic US agricultural commodities (primarily wheat) that would otherwise be scarce and imported at considerable foreign exchange cost. The programme provided economic development and food security in rural areas through the use of local currency generated by the sale of Title III commodities to finance community development projects. Cumulative commodity grants to Haiti since 1993 have amounted to \$85 million. The programme was ended in January 31, 2005.

The Title III-funded projects focused on supporting the Interim Government of Haiti (IGOH) policy reforms that aimed to increase food security, reduce poverty, and stem population growth in rural and peri-urban areas. Title III activities were complementary to other USAID projects in health, education, agriculture, natural resource management, income generation, and Regional economic development (US AID, 2006), by providing greater focus on food, nutrition and poverty.

Consumption/Utilization

When access to food is sufficient to ensure food security it is also important that it is consumed in appropriate quantity and quality to

achieve good nutrition and health. The inseparable link and inter-relationship between food, nutrition and health is now well recognized. Inadequate quantity or quality of food consumed deprives the body of nutrients that help to protect it from diseases, and the quality of diets influences the body's immune response capacity. For example, protein energy malnutrition and specific nutrient deficiencies reduce the body's ability to resist infection. This leads to greater severity, a higher incidence, and more prolonged duration of illness. Further, infection affects food intake and utilization by (i) reducing dietary intake through loss of appetite; (ii) increasing nutrient requirements due to increased nutrient loss during illness; and (iii) creating a metabolic response that both simulates the immune response and suppresses body growth.

Food consumption surveys in the Region are scarce and not much information is available on diets and actual food consumption patterns. However, as described above, the foods consumed by individuals and their dietary patterns can influence their health and nutrition status. Mainly for this reason, therefore, the areas that are analysed in this subsection will relate to health, nutrition and diseases in the Region. Limited consumption information from two countries will also be presented.

For most countries in the Region significant pockets of under-nutrition exist and in a few countries high rates can be observed. Concurrently, the Region is witnessing an increasing prevalence of obesity and its comorbidities - diabetes, hypertension, stroke, cardiovascular diseases, some cancers and gallbladder diseases. Against this background, interventions are needed to sustain successes made in the past with respect to undernutrition and infectious diseases and to address the rapidly increasing NCDs that are now the major public health problems in the Region.

Undernutrition

Undernutrition for children less than 5 years of age is a critical marker of severe food insecurity. Undernutrition exists in the Region but not as severely as in other parts of the world. For most countries in the Caribbean for which trend data are available the rates of children under five years old who suffer from undernutrition have been decreasing over the past decade (Table 5). Low and decreasing rates are observed for Trinidad and Tobago, St. Kitts and Nevis, Dominica and Antigua and Barbuda, while Jamaica and Grenada show moderate rates. Undernutrition in Haiti, Guyana, Belize and St Vincent and The Grenadines is relatively high.

While under-nutrition rates for these countries have been declining (except for St Vincent and The Grenadines), these rates are the highest compared to the other countries. Moreover, recent surveys in Guyana indicate that undernutrition is prevalent, especially among the indigenous population, most of whom live in the interior of the country where lack of economic opportunities and a poor transportation network constrain access to adequate food and health care.

Micronutrient Deficiency

Anaemia is the most common micronutrient deficiency in the Region. Data from micronutrient surveys conducted in selected countries in the Region show high levels of anaemia in children (ranging between 34.4 and 55.7 per cent) for most countries and moderate levels (ranging between 11.0 and 11.4 per cent) for others (Table 5). Although there are other causes, anaemia is mostly a reflection of iron deficiency. Poor dietary intake and utilization are possible reasons for this and other micronutrient deficiencies in the Caribbean. One health consequence of anaemia is impaired brain function leading to reduced work capacity and physical endurance. Children who are anaemic can become inattentive, irritable and fatigued.

Table 5

Undernutrition (Weight for Age) in Selected CARIFORUM (<5 Year Olds) %

Countries	1994-1996	2000-2003	Trend	
<i>High Rates</i>				
Haiti	32.0	22.0	↓	↑
Guyana	19.0	9.4		
Belize	15.0	7.3		
St. Vincent and the Grenadines	5.7	5.9		
<i>Moderate Rates</i>				
Jamaica	5.6	3.6	↓	↑
Grenada	1.5	3.4		
<i>Low Rates</i>				
Trinidad and Tobago	3.4	2.5	↓	
St. Kitts and Nevis	4.4	2.0		
Dominica	2.3	1.6		
Antigua	1.8	1.0		

Source: (i) CFNI (Undernutrition (weight for age) – country clinic data).
(ii) Data for Haiti are from World Bank (2006).

Table 6

Micronutrient Deficiency (Anaemia*) in Selected CARIFORUM Countries

Country	Target Group	Prevalence (%)	Level
Antigua (1996)	1-4 yrs	49.4	High
Belize (1996)	2-8 yrs	51.7	High
Dominica (1997)	1-4 yrs	34.4	High
Grenada (1992)	0-5 yrs	55.7	High
Guyana (1997)	0-4 yrs	47.9	High
Jamaica (1997)	1-4 yrs	48.2	High
Barbados (1981)	0-4 yrs	11.4	Moderate
St. Lucia (1999)	0-5 yrs	11.0	Moderate

Source: CFNI. *WHO cut-offs: <11 g/dl.

In most countries of the Region, anaemia prevention and control programmes do exist. However, in these programmes young children are often not among those targeted in public clinics. The programmes are invariably constrained by scarce financial resources, which prevent both broad coverage and expansion. Often, beneficiaries are asked to contribute towards the cost of testing or supplements, which can be a problem for poorer households.

Nutrition-Related NCDs

Food availability data indicate consumption of fats and sweeteners significantly above the World Health Organization (WHO) Recom-

mended Population Goals (RPG), while consumption of fruits and vegetables is below RDA. Nutrition-related NCDs diabetes, high blood pressure, stroke, heart diseases, and some forms of cancers are the major public health problems and account for most deaths in the Region (Table 7).

A major risk factor for these NCDs is obesity, caused largely by unbalanced diets and sedentary lifestyles (Box 2 presents some information on consumption patterns in Guyana and Barbados). The prevalence of obesity has increased in the Region, principally in adults but also to some extent in adolescents and infants.

Table 7			
Main Causes of Death in the Caribbean, 1980, 2000			
Main Causes of Death in the Caribbean, 1980, 2000			
1980 (%)		2000 (%)	
1. Heart Disease*	20	1. Heart Disease*	16
2. Cancer*	12	2. Cancer*	15
3. Stroke*	11	3. Stroke*	10
4. Injuries	8	4. Diabetes*	10
5. Hypertension*	6	5. Injuries & Violence	7
6. ARI	5	6. HIV/AIDS	6
7. Diabetes*	4	7. Hypertension*	6
*Nutrition Related = 53%		*Nutrition Related = 57%	

Source: Caribbean Epidemiology Center. www.carec.org
Data for Dominican Republic and Haiti are not available.

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Box 2: Food Consumption Patterns in Guyana and Barbados

Data from recent food consumption surveys in Guyana and Barbados indicate several areas of concern for food and nutrition security. In the case of Guyana, the major risk groups with respect to diets are:

- Females
- Persons living in the Interior
- Amerindians
- Persons in the age range 50-64

The major areas of concern appear to be:

- Relatively high fat consumption which is linked to food preparation practices and practices at the table. In this regard, some interventions seem warranted toward females who, in addition to being more vulnerable, are also responsible for food preparation;
- Food availability and accessibility, especially in the more remote areas;
- Lack of diet diversity especially with respect to the inclusion of fruits and vegetables;
- Possibility of micronutrient deficiency in some older persons and in females in the case of iron;
- Trends towards increasing levels of overweight and obesity especially in women coupled with some incorrect perceptions of body size among those who are in fact overweight.

In the case of Barbados, the main findings include:

- High prevalence of obesity in the population, especially among youths. This places them at high risk of developing non-communicable diseases (NCDs);
- High prevalence of NCDs has also been observed among older persons;
- It appears that Barbadians at risk have little knowledge of the individual, family and community factors associated with obesity, chronic non-communicable diseases and the poor quality of life emanating from these risks;
- Finally, in addition to overweight and obesity, Barbadian diets lack diversity and tend to be inadequate in minerals and vitamins.

Figure 4 presents data on obesity for selected countries across different age groups. The highest proportion of obesity is among the three upper age groups. The two lower age groups (18-24 and 25-34), those who are expected to be the most active, show obesity rates that range between 8 and 20 per cent.

Summary

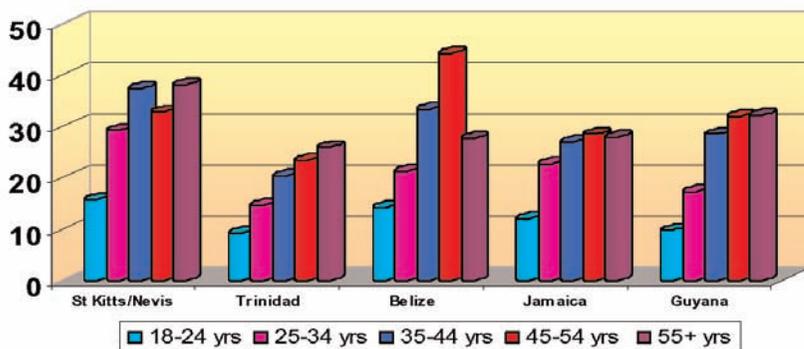
While global prevalence of overweight among pre school children is estimated at 3.3 per cent, Regional data show higher rates such as 3.9 per cent for Barbados and 6.0 per cent for Jamaica (Henry, 2004). The Caribbean Food and Nutrition Institute (CFNI) has compiled surveillance data on children and adolescents which show that children overweight and obese account for up to 15 per cent of this

group in various countries. Moreover, obesity has an inter-generational implication. Adult obesity is associated with child obesity and this risk increases when the mother or father of the obese child was also obese. The risk of adult obesity is 2.0-2.6 times greater in obese pre-school children than in non-obese pre-school children (Serdula, 1993).

In terms of availability, the Region has enough food to meet overall energy requirements of the population. The Region also has an excess of macronutrients but is in deficit with respect to fruits and vegetables. Food security is being compromised not in terms of availability of food, but in terms of accessibility and consumption/utilization. Poverty and income inequality are at high levels, and the nutritional and health profiles suggest serious imbalances in diets.

Figure 4

Prevalence of Obesity (Body Mass Index > 30 by Age Group (Selected Countries))



Source: CFNI (most recent data).

Factors Affecting Vulnerability

This section provides an overview of the factors and conditions that impact on the vulnerability of CARIFORUM countries. Several writers have argued that small economies, engaged in mono-crop industries, may be susceptible to unforeseen events or sudden shocks, which may impact adversely on their societies and which occur outside their control (Briguglio, 1995; 2004; Crowards, 2000). More recently efforts have been made to develop a measure of the social vulnerability of Small Island Developing States (SIDS). For the Economic Commission for Latin America and the Caribbean (ECLAC, 2005b), social vulnerability embraces several conditions: exposure to damage; lack of protection and precariousness; the risk of being harmed or wounded by unforeseen events; and two opposing concepts - susceptibility and resilience or sustainability. Following ECLAC (2005b), social vulnerability depends on social susceptibility and resilience. Social susceptibility depends on such factors as, female-headed households and living in disaster-prone areas resulting in low health status and low economic wellbeing. Social resilience includes factors such as adequate levels of education; possessing strong social capital; and adequate housing.

The poor economic situation in countries such as Haiti and Guyana make them vulnerable to food insecurity, but does the small size of the countries have a negative effect? Several recent studies argue that there is no evidence that small states suffer growth disadvantage (Easterly and Kraay, 2000; Favaro, 2004 and the World Bank, 2003). On the other hand, there is a large body of established literature that identified various factors that cause small states to be volatile (measured by the standard deviation of GDP growth) and vulnerable. Indeed, all of the CARIFORUM countries are on the list of 41 states recognized as SIDS by the United Nations, defined in terms of population, geographical size and GDP (World Bank, 2000; FAO, 2005a). Their special characteristics make these countries particularly vulnerable to food insecurity. For ease of discussion, the factors and conditions impacting on vulnerability are organized around three main areas: (i) Economic; (ii) Social; and (iii) Environmental factors.

Economic Factors

CARIFORUM countries, as small economies, share a number of characteristics that pose special development challenges and vulnerabilities. These include:

- **Openness.** A high degree of openness of the economies can be indicated by the high proportion of total trade (imports plus exports) in GDP. For the Region as a whole, on average this proportion was 132 percent and 123 percent over the periods 1990-97 and 1998-03, respectively (World Bank, 2005b). Openness may bring benefits, but it also means that these small economies

serious difficulties if tariffs are reduced. The high volume of external trade provides a convenient, broad tax base from which taxes can be collected at a relatively low administrative cost. Any reduction of average import tariffs can therefore result in shortfall in tax revenues that is not always easy to offset in the short term by raising other taxes.

Table 1
Food Imports as a Proportion of total Exports

Country	1990/92	1993/95	1996/98	1999/01	2003/04
Antigua/Barbuda	0.92	0.71	0.97	0.37	0.60
Bahamas	0.12	0.13	0.10	0.11	0.40
Barbados	0.44	0.48	0.37	0.47	0.48
Belize	0.22	0.23	0.23	0.27	0.20
Dominica	0.34	0.43	0.54	0.50	0.55
Dominican Republic	0.46	0.65	0.51	0.64	0.90
Grenada	0.74	1.04	1.11	0.42	0.81
Guyana	0.22	0.10	0.12	0.15	0.13
Haiti	1.68	2.60	2.13	1.18	1.09
Jamaica	0.37	0.33	0.29	0.35	0.25
St. Kitts/Nevis	0.48	0.56	0.64	1.06	0.69
Saint Lucia	0.33	0.46	0.83	1.45	0.99
St. Vincent/Grenadines	0.23	0.35	0.52	0.48	1.10
Suriname	0.14	0.15	0.27	0.17	0.90
Trinidad and Tobago	0.16	0.15	0.14	0.09	0.60

Source: Columns 2-5 (FAO, 2005d); column 6 (FOASTAT data, www.fao.org)

are heavily exposed to events in global markets, such as changes in the global trade regime, over which these states have very little influence. They also tend to rely more heavily on import taxes as a revenue source, which can pose

- **High Food Import Value to Total Export Value.**

Food imports account for a substantial proportion of total value of export earnings in the Region (Table 1). In 2003/04, Haiti and St. Vincent and the

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Grenadines imported more food than they exported, while the Dominican Republic, St. Lucia and Suriname showed relatively high food imports to exports ratios (World Bank, 2005b, FAO 2005d). Grenada's reduction in food imports in late 1999 to 2001 reflects the Government's rehabilitation of the country's agriculture sector (Government of Grenada, 2006). This food import capacity indicator identifies the vulnerability of the countries of the Region.

- **Limited Diversification.** Regional economies have historically relied on a narrow economic base for income, employment, and foreign exchange. Even in cases where one dominant activity has declined, it has tended to be replaced by another. This adds to vulnerability to change in the external environment. The Import and Export Concentration Indexes for the countries in the Region (UNCTAD, 2006) show that these economies are relatively undiversified, and for most of them this has not changed significantly over the decade 1993-2003 although for most of the countries the number of commodities have increased. Additionally, for several countries the top five agricultural export commodities from CARIFORUM countries account for 90-99 percent of their total agricultural exports (FAO, 2005d).
- **Poverty.** There is some evidence that poverty levels tend to be higher, and income distribution more uneven, in smaller states than the larger ones. Where this is so, income volatility can create additional hardship as the poor are less able to weather negative shocks to their incomes (World Bank, 2000).
- **Income Volatility.** Overall, the range of per capita incomes and rates of growth are not significantly different in small and large developing countries. However, small states experience higher volatility in their incomes; i.e., the standard deviation of annual real growth in small states is about 25 percent higher than in large states (World Bank, 2000). This year-to-year volatility derives from openness and undiversified economies as described above and the fact that many small states are particularly prone to natural disasters due to their geographical location.
- **Access to External Capital.** Access to global capital markets is important for small states, and is one way to compensate for adverse shocks and income volatility. But the evidence is that private markets tend to see small states as more risky—28 per cent more than larger states, so that spreads are higher and market access more difficult (World Bank, 2000).

The above factors have been combined to compute a number of vulnerability indices (Atkins, et al., 2000; Crowards, 2000; Briguglio, 1995). Table 2 shows most CARIFORUM countries in the high vulnerability situation. Intuitively, it might seem implausible to place Haiti in the same vulnerability category as Barbados and Jamaica. However, in interpreting the indices, it must be noted that they measure the total effect of the elements included in the index. Thus, trade openness is not of itself detrimental, but rather, when it is associated with an undiversified economy, high incidence of natural disaster, etc., then these factors combine to make these economies vulnerable.

Briguglio et al (2004), argue that SIDS, to which CARIFORUM

countries belong, when compared with other countries, tend to be more exposed to international trade, have higher export concentration, are more dependent on strategic imports, and have relatively higher transport costs. Using these variables, the authors calculated vulnerability scores for 117 countries which show that smaller countries tend to have higher vulnerability scores than larger countries (Figure 1). However, the authors argue that although economic vulnerability poses serious constraints, many SIDS have managed to attain relatively high GDP per capita, possibly because they have taken steps to build resilience to cope with their inherent vulnerability.

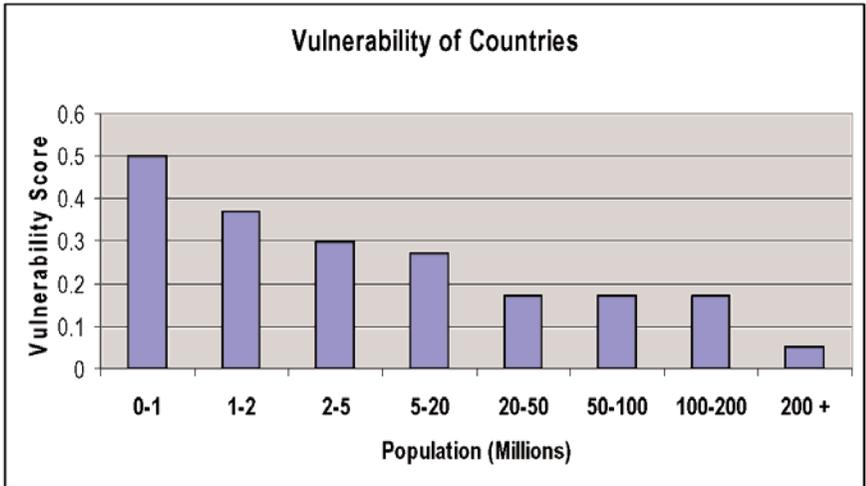
Table 2

CARIFORUM Countries According to Commonwealth Vulnerability Index

High Vulnerability	Higher Medium Vulnerability	Lower Medium Vulnerability
Antigua & Barbuda	Barbados	Dominican Republic
Bahamas	Haiti	Trinidad/Tobago
Belize	Jamaica	
Dominica		
Grenada		
Guyana		
Montserrat		
St. Kitts/Nevis		
St. Lucia		
St. Vincent & the Grenadines		

Source: World Bank, 2000.

Figure 1
Vulnerability of Countries by Size



*Vulnerability Score ranges between 0 (not vulnerable) and 1 (highly vulnerable).
Source: Briguglio et al., 2004.*

Social Factors

Social vulnerability is a pre-existing condition that affects the ability of people, organizations, and societies to withstand adverse impacts from multiple stressors to which they are exposed. These impacts are due in part to characteristics inherent in social interactions, institutions, and systems of cultural values. A major source of vulnerability to food security is the prevailing high levels of poverty. Social vulnerability in CARIFORUM countries finds expression in several forms. For purposes of this paper the focus is on (i) the brain drain; (ii) education and health

services; and (iii) issues facing youths.

The brain drain

While several collective responses are advanced to address external shocks, the region is faced with significant out-migration and brain drain. For example, most of the US-Caribbean migrants are in the age range 20-44, with education levels that are fairly high (usually higher than the population average). Available data indicate that about 61 per cent of migrants from the English-speaking Caribbean to the US have at least some tertiary education and another 25 per cent

had completed secondary education (World Bank, 2005b). ECLAC (2000) reports that 43 per cent of migrants from the Dominican Republic and 58 percent from Haiti has at least 12 years of schooling. Admittedly, remittances from emigration to the Region has been substantial (some estimates suggest about 5-6 percent of Caribbean GDP per annum). However, the emigration-especially when it involves skilled and highly educated cadres of persons-represents a significant loss of human resources. This brain drain does reduce the human capital for national and regional development.

Education and Health

Recent studies suggest that the Caribbean is lagging behind the rest of the world in improving educational attainment (Barro and Lee, 2002). Although systematic comparison of schooling quality between the region and International Standards is lacking, there is some indication that the quality of education in the Caribbean is below world standards (World Bank, 2005b; Miller, 1998). Studies have concluded that the quality of education correlates well with long-term economic growth (Hanushek and Kimko, 2000). Moreover, low quality of schooling lowers transition rates into secondary and tertiary levels, reduces health through higher HIV and AIDS infection rates and teen pregnancies,

and increases youth delinquency (World Bank, 2003).

Public expenditure on health in CARIFORUM countries is relatively low-averaging 3.16 per cent of GDP (US\$220 per caput) over the period 1995-2002 (World Bank, 2005b). Moreover, public health expenditure as a percentage of GDP in the Region has remained fairly constant over the past decade. Admittedly, the Region has made impressive health status achievements in the past. But the increasing prevalence of obesity and its co-morbidities such as diabetes, hypertension, stroke, heart diseases, etc.) requires investment in health if the Region is to address these health burdens effectively. It must be noted that these are not "diseases of the affluent" but cut across demographic and economic lines. Given that these diseases are twice as costly to treat compared with other diseases, attention must be given to the poor and vulnerable persons in the population.

Issues Facing Youth

There is growing concern over several issues facing the Region's youth (see World Bank, 2005b for a discussion of these issues):

- The Region has comparatively high levels of sexual and physical abuse, with one out of ten boys reported to have been sexually abused (according to a nine-country CARICOM study);

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- Outside of Africa, the Caribbean Region records the highest incidence of HIV and AIDS, with about one-third of the disease cases contracted by persons between the ages of 15 and 24;
- Homicide rates in the Caribbean are almost twice the world average, with young men accounting for a disproportionately high percentage of the perpetrators as well as victims;
- Substance abuse and drug dealing are other significant problems facing at-risk youth in the Caribbean. The social costs of risky youth behaviour are enormous, exact a high toll on society, and affect, both directly and indirectly, the investment climate and productivity.

Environmental Factors/Conditions

CARIFORUM countries are prone to natural hazards and – especially the Organization of Eastern Caribbean States (OECS)¹ – rank among the top 10 countries by number of disasters per land area and per population. These countries experience frequent natural disasters such as hurricanes, cyclones, floods and droughts, which typically affect the entire population and economy. Ramussen (2004) estimated that

natural disasters that affect at least 2 per cent of a country's population or damage at least 2 per cent of GDP, seem to occur in the Region once every 2½ years. Table 2 reports on the top 20 natural disasters in the Caribbean Disaster Emergency Response Agency (CDERA) member countries.²

These natural disasters resulted in 110 deaths and 689 injuries, affected 822,154 and left 30,323 persons homeless, and amounted to an estimated total damage of US\$5.225 billion (CDERA, 2007). The degradation of the environment in the Region's countries increases the likely impact of natural disasters, as discussed in Box 3.

Narrow natural resource bases, high interdependence of ecosystems and a propensity for climatic disasters limit the Region's abilities to address its natural hazards or to diversify its economic activities. Throughout the Region, environmental factors have immense effects on food production, sourcing, and prices, thereby impacting on food security. Building resilience to these environmental conditions involves expenditures that are relatively high for small economies already facing stringent financial constraints. In particular, the lumpiness/indivisibilities of public investment in

¹Anguilla, Antigua & Barbuda, Dominica, Grenada, Montserrat, St Kitts & Nevis, St Lucia, and St Vincent & The Grenadines.

²Caribbean Disaster Emergency Response Agency (CDERA) member countries include CARICOM (excluding Haiti), Anguilla and the British Virgin Islands.

Table 2
Top 20 Natural Disasters in the Caribbean by Magnitude of Total Losses

Year	Country	Event	Killed	Injured	Affected	Homeless	Total Losses (US\$)
2005	Guyana	Flood	37	0	274,774	0	2,674,322,175
2004	Grenada	Tropical Cyclone	28	680	81,883	18,000	895,199,567
2004	Jamaica	Tropical Cyclone	17	0	369,685	0	592,971,569
2004	The Bahamas	Tropical Cyclone	0	0	8,000	0	356,983,000
2004	The Bahamas	Tropical Cyclone	2	0	28,000	0	350,888,000
1980	St Lucia	Tropical Cyclone	9	0	0	6,000	92,592,593
1994	St Lucia	Tropical Cyclone	3	0	0	0	85,185,185
2005	Grenada	Tropical Cyclone	1	0	39,085	4,311	75,478,163
2004	Dominica	Earthquake	0	0	19,527	0	45,150,614
2004	T&T	Mudslide	2	4	1,200	0	33,333,333
2004	St Lucia	Tropical Cyclone	0	1	0	0	10,464,720
1996	St Lucia	Tropical Cyclone	0	0	0	0	4,444,444
2004	St. Vincent	Tropical Cyclone	0	4	0	0	4,110,037
1960	St. Lucia	Tropical Cyclone	6	0	0	0	1,421,481
1967	St Lucia	Tropical Cyclone	1	0	0	0	740,741
1955	St. Lucia	Fire	3	0	0	2,000	462,963
1963	St Lucia	Tropical Cyclone	0	0	0	0	227,778
1966	St Lucia	Tropical Cyclone	0	0	0	0	227,778
1998	St Lucia	Tropical Cyclone	1	0	0	12	230,185
1990	St Lucia	Earthquake	0	0	0	0	214,813
Total			110	689	822,154	30323	5,224,649,139

Source: CDERA website: www.cdera.com (June, 2007)

Box 3: CARIFORUM Environmental Issues

CARIFORUM countries are vulnerable to natural hazards. However, the natural environment in the region is constantly under threat (World Bank 2005b):

- Excessive deforestation and soil erosion are observed, especially in Haiti, making countries more susceptible to floods, landslides and soil erosion during hurricanes.
- Insufficient appreciation for environmental resources is reflected in inadequate land-use planning and enforcement which permits human settlements, including expansive tourist resorts to make claims on fragile eco-systems. This places pressure on the environment, compromises its integrity to protect against deforestation, soil erosion, tidal waves, and sustain biodiversity.
- Coastal waters and coral reefs adjacent to townships are contaminated due to inadequate treatment and disposal of waste water and solid waste.
- Significant changes in weather patterns, including frequent intensified rainfall and flooding and rising sea water levels, increase the vulnerability of low lying coastal and flood prone land areas in the region.

disaster mitigation projects result in higher unit costs for small states. Moreover, the build-up of debt in most CARIFORUM countries places a first claim on resources to service and pay back these debts.

A number of studies reveal that natural disasters are typically associated with:

- *An immediate contraction in economic output.* Auffret (2003) and Charvériat (2000) considered 51 natural disasters in Latin America and the Caribbean and found that a 1-3 per cent of GDP in direct

damage reduced same-year GDP growth by 0.5-1.7 percentage; Crowards (2000) finds that same-year GDP growth fell by an average of 3.1 percent following 21 major disasters.

- *A worsening of external balances.* Several studies (ECLAC, 2000; Crowards, 2000; Benson, et al., 2001) have found that natural disasters typically result in tend to suffer, thereby deteriorating the external balance of payments.

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- *A deterioration in fiscal balances.* While significant relationships are difficult to establish, the literature suggests that natural disasters can put substantial pressure on public finances (Ramussen, 2004).
- *An increase in poverty.* Studies by the World Bank (2003) and the International Monetary Fund (IMF) (2003) have found that natural disasters impact disproportionately on the poorer segments of the population mainly because low-income households often settle in the most vulnerable areas, live in poorly constructed houses, or have fewer assets and limited access to credit.

The World Food Programme (WFP), recently reviewed the emergency response and preparedness efforts of seven CARIFORUM countries (WFP, 2006a-g).³ The studies reveal that the countries are at varying degrees of disaster preparedness and mitigation. Specifically, all the countries have a natural disaster response management and implementing agency and either a fully developed and legislated policy or some form of interim natural hazard mitigation plan. These policies/plans do recognize the need for disaster preparedness, mitigation and man-

agement and provide a framework for implementing risk-reduction initiatives. However, the countries' efforts are variously hampered by:

- Inadequate financial, human and transport resources;
- Poor shelter facilities and insufficient storage for food, water and emergency supplies;
- Unreliable data on food stores;
- Poor community preparedness; and
- The need to update/revise the policies/plans to enhance emergency response and preparedness in the countries.

A brief description of each country's emergency response and preparedness efforts follows:

- (i) **Antigua and Barbuda's** 2001 National Hazard Mitigation Policy and Plan has been quite limited. At present, efforts and technical capabilities remain primarily directed towards the management and coordination of disaster events with only limited resources for addressing longer-term disaster mitigation efforts. National capacity for immediate response and recovery appears to be more developed and established. Disaster response plans have not been established in certain sectors, such as agri-

³*Antigua and Barbuda, Barbados, St Lucia, Dominica, Trinidad & Tobago, Grenada and Jamaica.*

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culture, and participation of the private sector in disaster planning has been limited.

- (ii) In **Barbados**, the Central Emergency Relief Organization (CERO) has identified flooding, landslides, earthquakes, and storms with high winds as the primary natural disaster risks in Barbados. In spite of Barbados' recurrent vulnerability to natural disasters and the effect of these on the population and the economy, nowhere does the current National Strategic Plan explicitly address the need and commitment to allocate resources for comprehensive disaster risk management.
- (iii) The **St Lucia** National Emergency Management Organization (NEMO) has identified landslides, flooding, storms with high winds, sea surges, and earthquakes as the primary natural disaster risks. Because the island is only sporadically impacted by a major direct hurricane, the population and the Government have become complacent - referred to locally as the "God is a Lucian" syndrome. Nevertheless, NEMO has proceeded to undertake a number of preparedness and mitigation activities, including flood control, sea defences, road terracing, retrofitting of schools and health centres, and the training of personnel from public and private institutions.
- (iv) **Dominica's** National Disaster Plan was written in 1996 and needs to be revised to make it more relevant to the current situation. Several geographic areas and types of households are more susceptible to natural disasters. But regardless of geographic location, poorer households are more susceptible to disasters as they are less likely to have structurally sound homes or stores of emergency food and water supplies.
- (v) The level of emergency preparedness in **Trinidad & Tobago** at the national level is low. This is due to the lack of a legislative mandate for the Office of Disaster Preparedness and Management (ODPM) and is exacerbated by difficulties in carrying out cross-ministerial work. As a result, there is limited ownership and responsibility in the area of emergency preparedness and response. Because of a lack of coordination, small disasters grow and develop into compound disasters.
- (vi) **Grenada** has made significant changes in its emergency preparedness and response approach. Nevertheless, many people feel that the country will be un-

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prepared if a disaster strikes in the near future, largely because:

- There is little coordinating activity between relevant organizations.
- Emergency relief storage facilities are centralized and limited.
- The primary focus is on risk management and is limited by a lack of technical staff.
- The public is largely unaware of changes in emergency preparedness, shelter locations, and recommendations for family level preparations. There is therefore an identified lack of urgency in the community.

(vii) Jamaica is also in transition in terms of disaster and emergency preparedness and management. Jamaica's leaders have realized that disaster risk reduction and mitigation must be strengthened and move much higher on the development planning agenda. The United Nations Development Programme (UNDP) Country Team in Jamaica is a leading advocate of this change through its role in organizing the Western Caribbean Donor's Group. The prominent institution partner for food and

nutrition work in Jamaica is the Caribbean Food and Nutrition Institute (CFNI), an arm of PAHO/WHO dealing creatively with problems not only in Jamaica, but also throughout the Caribbean Region. For disaster planning, the lead agency is the Office of Disaster Preparedness and Emergency Management (ODPEM) under the Ministry of Local Government and Environment. Together these organizations lead efforts to address Jamaica's food insecurity and reduce its disaster vulnerability.

Summary

This section discussed three sets of factors: economic, social and environmental – that contribute to the vulnerability of CARIFORUM countries. The economic factors include inter alia openness of the economies, food trade dependence, and import and export concentration. The social factors include brain drain which reduces human capital for development, education, health and issues relating to youth. Finally, the discussion on the environment drew attention to the fragility of these economies and their exposure to natural hazards.

Regional Frameworks to Reduce Vulnerabilities

The Region has been experiencing fluctuating fortunes over the past three decades which in turn have impacted negatively on poverty and food security. Food and energy prices increased significantly in the 1970s with similar trends since then and preferential markets for the Region's major agricultural exports (e.g., sugar and bananas) are currently under threat. From a traditional position of agricultural surplus, most CARIFORUM countries are now net food importers.

The Regional frameworks to reduce these and other areas of vulnerabilities reflect a consensus among Regional Governments for collective and Regional initiatives. For purposes of this paper, the initiatives to be discussed include: The Regional Food Plan (RFP), the Regional Transformation Programme in Agriculture (RTPA), the Caribbean Regional Negotiating Machinery (CRNM), the CARICOM/FAO Regional Special Programme for Food Security (RSPFS), the Jagdeo Initiative, and the Caribbean Cooperation in Health (CCH) Initiatives. These Regional initiatives are being pursued in tandem with one another and with differing degrees of interdependence. Further, several of these pro-

grammes are agriculture-related and have been designed to strengthen agriculture's own development and enhance the sector's capacity to contribute to national and Regional development. In particular, these programmes seek to:

- Enhance the performance of the Regional agricultural sector;
- Increase production of a diverse range of food/agricultural products;
- Enhance food security;
- Expand market share of traditional and new products in international markets to increase foreign exchange; and
- Increase employment and improve quality of life, especially in rural areas.

Beyond these specific and focused programmes, these Regional initiatives and approaches are designed to help CARIFORUM countries improve their effectiveness in the areas of functional cooperation, trade and foreign policy and strengthen their intra-regional links, thereby improving the capacity of individual member states to address their vulnerabilities. The following subsections elaborate on these specific Regional initiatives.

Regional Frameworks

The Regional Food Plan

The Regional Food Plan (RFP) was advanced by CARICOM Governments in 1975. This was presented as a comprehensive Regional approach to agricultural development, with the Caribbean Food Corporation (CFC) as the implementing agency. The RFP was designed to address product-related aspects of a wide range of food crops. In this regard, pre-feasibility and feasibility studies were conducted on a number of Regional agricultural products including: grains, legumes, fruits and vegetables, spices and essential oil, livestock and livestock products, fish and fish products, and oils and fats. Individual CARICOM countries were identified as the most appropriate locations for such agricultural production based on a mix of economic and political criteria. Initially, the role of the CFC was to undertake equity investment in non-traditional small and medium-scale agricultural enterprises (i.e., activities other than those in the sugar, rice and banana industries). It was also required to invest in developmental projects for which Governments should have assumed responsibility. Given the nature of some of these activities, there were some failures. Subsequently, the CFC's investment policy was changed to allow a combination of loan and equity investments in traditional and non-

traditional agricultural activities, as well as in medium to large-scale enterprises.

The projects were Regional in perspective and complementary and supplementary to existing national projects. In the late 1970s and early 1980s, the changed economic circumstances of CARICOM member states constrained their ability to make their agreed financial quota allocations to the CFC. However, the Corporation was able to mobilize funds and technical assistance from donors such as the Caribbean Development Bank (CDB), United Nations Development Programme (UNDP), the European Union (EU), The Kingdom of the Netherlands, the United States Agency for International Development (USAID) and the Canadian International Development Agency (CIDA). Despite these efforts, the increased competition faced by the Region's agricultural sector, following market liberalization in the 1980s, resulted in a number of the CFC's investments becoming unprofitable. Moreover, the policy to move from direct public-sector involvement in productive activities reduced the opportunities for further investment by the Corporation. Over time, this led to a scaling back of the Corporation's operations and in 1999 to the absorption of the CFC into the Caribbean Agricultural Research and Development Institute (CARDI).

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Several factors combined to prevent the realization of the benefits envisaged by proponents of the RFP. These include:

- Lack of adequate funding to fully operationalize and sustain the production activities embarked upon by the CFC;
- As an extension of (i) the programme suffered from ineffective coordination and implementation; and
- Although the framework of the RFP to a large extent countenanced some degree of a market-oriented approach to investments in agri-related enterprises, this was not sufficiently intensive or robust to accommodate and/or respond to the far-reaching economic liberalization of both the national and world economies in the late 1980s and subsequently.

The Regional Transformation Programme for Agriculture

In 1996, Regional Heads of Government approved the Regional Transformation Programme for Agriculture (RTPA). This was considered crucial in addressing the increasing challenges to marketing arrangements for agricultural commodities and the impending loss of preferential markets. The main thrust of the RTPA is to effect a fundamental transformation of the agricultural sector of the Region by

diversifying agricultural production, intensifying agro-industrial development, expanding agri-business and generally conducting agricultural production on a market-oriented, internationally competitive and environmentally sound basis (IICA, 2005). National consultations over the period 1995-1996 to gather inputs for the RTPA highlighted the need for improved income distribution, employment, improved foreign exchange, increased Regional trade opportunities, financing, human resource development, food and nutrition security and facilitation of sectoral linkages. The consultations also identified the need for projects focused on expanding markets, land availability, sustainable and environmentally-friendly policies, strengthening of agricultural institutions, ensuring food and nutrition security, and human resource development.

At the operational level, the RTPA as a support mechanism for sectoral transformation is currently providing assistance to the Region's economies in the following areas:

- Policy support in agriculture through training of public-sector policymakers and generation and analysis of data;
- Human resource development through short-term courses and funding undergraduate and postgraduate studies;

- Technology generation, validation and transfer and extension principally through PROCICARIBE;¹
- Agri-business and marketing development; and
- Support for the regional forestry, fisheries and water resources programmes.

The Jagdeo Initiative

This is the most recent proposal to enhance the positioning of Regional agriculture in domestic and export markets. The initiative, spearheaded by President Bharrat Jagdeo, CARICOM Head with lead responsibility for agriculture, identified key critical constraints that affect Regional agriculture and crafted programmes and strategies for their alleviation. The importance of improving the international competitiveness of the Region's food and production derives from the view that, in the current context of new and changing international developments and environment, continuing modest results from agriculture are not acceptable. Instead, a new and fundamentally different approach is needed. Efforts and financial resources in this direction over the past two

decades have not achieved the major objectives of reducing the Regional food import bill, creating an enabling environment for increased private and public sector investment, and enhancing agri-business stakeholders' participation in domestic and export markets. The limited success is attributed to a combination of ineffective policies at the national levels and insufficiently coordinated implementation framework at the national and Regional levels.

The proposal identifies the following key binding constraints to Regional agricultural development:

- Limited financing and inadequate levels of new investments;
- Deficient and uncoordinated risk management measures;
- Fragmented and disorganized private sectors;
- Inadequate research and development;
- Outdated and inefficient agricultural health and food safety (AHFS) systems;
- Weak land and water distribution and management systems;
- Inadequate transportation systems, particularly for perishables;

¹PROCICARIBE is the Caribbean Technology Networking System. It is designed to provide an institutional framework by which the Region can design and implement strategies for the integration and coordination of agricultural research at the national and Regional levels with linkages to international organizations.

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- Weak and non-integrated information and intelligence systems;
- Weak linkages and participation of producers in growth market segments; and
- Lack of skilled and quality human resources.

In an effort to address these key-binding constraints effectively, several interventions are proposed under broad themes as follows:

- Financial, physical and institutional arrangements that underpin the enabling business environment;
- Expanding supply capacity and competitiveness;
- Strengthening of private sector organizations in agriculture, including farmers and commodity associations, as a medium to facilitate, develop and empower entrepreneurial capacity throughout the value chain; and
- Efficient resource management, as a prerequisite for economic, social and environmental sustainability.

The Proposal visualizes a sector that, by 2015, has:

- Made substantial progress towards contributing significantly to national and regional development and to economic, social and environmental sustainability;

- A transparent regulatory framework at national and regional levels, that promotes and facilitates investment and attracts (direct and indirect) inflows of capital;
- Significantly transformed its processes and products and stimulated the innovative entrepreneurial capacity of Caribbean agricultural and rural communities; and
- Enabled the Region to achieve an acceptable and stable level of food security.

It must be noted that the Jagdeo Initiative for interventions finds its legitimacy in, and does not seek to replace, the Regional Transformation Programme for Agriculture (RTP). Instead, it is premised on a recognition that progress within a CARICOM Single Market and Economy (CSME) requires accelerated efforts to operationalize the RTP (with appropriate adjustments as necessary), and to incorporate and build upon previous actions, such as, the Alliance for the Sustainable Development of Agriculture and the Rural Milieu (1998), the Caribbean Development Bank's symposium on the Repositioning of Regional Agriculture (2002), the CARICOM/FAO Regional Special Programme for Food Security Project (2003), and the OECS Policy and Plan of Action (2003/2004).

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The Caribbean Regional Negotiating Machinery

The Caribbean Regional Negotiating Machinery (CRNM), under the aegis of CARICOM, was established in 1997 as the principal Regional intergovernmental mediator with the global trading system. The CRNM's primary responsibility is to coordinate and spearhead a cohesive, coherent Regional trade policy, both strategically and on technical issues under negotiation. This entails developing and maintaining an effective framework for the coordination and management of the Caribbean Region's trade negotiating resources and expertise, and undertaking/leading negotiations where appropriate.

The CRNM's mandate is to assist the Region to maximize the benefits of participation in global trade negotiations by providing sound, high quality advice, facilitating the generation of national positions, coordinating the formulation of a unified strategy for the Region and undertaking/leading negotiations where appropriate (CRNM, 2006). At present, the Region is involved in a packed agenda of trade negotiations, and is engaged in its most formidable negotiations of the post-independence period, both in respect of scale and complexity. The four negotiating theatres in which the Region is simultaneously involved are:

- World Trade Organization (WTO);
- Free Trade Area of the Americas (FTAA);
- Economic Partnership Agreements (EPAs) with the European Union; and,
- Bilateral negotiations, which currently are primarily focused on possible negotiations with Canada and Mercosur.

The Regional Special Programme for Food Security (RSPFS)

In May 2002, the CARICOM Council for Trade and Economic Development (COTED) approved a US\$26.1 million CARIFORUM Regional Special Programme for Food Security (RSPFS). The project was prepared within a context where food security outcomes were being affected by a number of factors, including but not restricted to:

- Declines in productivity of land, labour and management;
- Declines in incomes/earnings from traditional crops;
- The erosion and threatened loss of preferences;
- High dependence on imported food;
- The increasing incidence of pockets of poverty; and

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- The growing incidence in the Region of food related diseases.

The fundamental goal of RSPFS is to improve the food security situation of CARIFORUM states individually and as a whole by improving the productivity and incomes of smallholders through increasing the overall value and quality of agricultural produce traded and consumed. So far, the programme has received US\$4.97 million from the Government of Italy and another 3 million from FAO. The project which started in November 2003 has been extended to December 2007.

The project has two main components:

- A vertical component; and
- A horizontal component.

The Vertical Component aims to establish 210 farm demonstrations and expose 2500 -3000 small farmers to improved systems for irrigated vegetable production, hydroponic greenhouse and enhanced rice production. Emphasis is on the adoption of modern micro-irrigation and water management techniques. The horizontal component focuses on five functional areas:

- Food Security Assessments and Training (in Guyana, Suriname, Belize, St. Lucia and Jamaica);

- Food Security Policy Integration (the aim is to develop a Regional food security strategy);
- Community Food Security and Nutrition Enhancement (school gardens and community nutrition interventions);
- Trade Facilitation;
- Capacity building in support of improved market access.

Caribbean Cooperation in Health (CCH)

The concept of the Caribbean Cooperation in Health Initiative (CCH) was introduced in 1984 at a meeting of the former CARICOM Conference of Ministers responsible for Health (CMH). The CMH saw this as a mechanism for health development through increasing collaboration and promoting technical cooperation among countries in the Caribbean.² The initiative, in which seven priority areas were identified, was adopted by the CMH and approved by the Heads of Government in 1986. An evaluation of the Initiative (1992-1994), found that the priorities identified ensured that activities were focused in areas critical to improving health status in the Region and that the initiative was beneficial to Caribbean countries.

²The countries that have participated in the initiative include Antigua & Barbuda, Anguilla, The Bahamas, Barbados, Belize, Bermuda, The British Virgin Islands, the Caymans Islands, Dominica, Grenada, Guyana, Jamaica, Montserrat, St Lucia, St Vincent & The Grenadines, St Kitts & Nevis, Suriname, Trinidad and Tobago, and the Turks and Caicos Islands.

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The CCH is premised on the observation that the Caribbean countries share a similar history in the development of their health systems. There is need for even greater collaboration and cooperation among the countries in the Region, given the increasing threats to the economies of these countries and the presence of newly emerging and re-emerging problems in the health sector. Efforts therefore have to be focused not only in the fight against disease, but in promoting healthy lifestyles, protecting the environment and increasing the capacity of the health sector to provide cost-effective health services.

In 1996, the CMH mandated a re-definition and re-formulation of the CCH-I (1984) Initiative for the period 1997-2001. Eight health priority areas were identified and strategies were recommended for implementation over the period 1999-2003. The CCH-II Regional health priority areas include the following:

- Environmental Health;
- Strengthening Health Systems;
- Chronic Non-Communicable Diseases;
- Mental Health including Substance Abuse;
- Family Health;
- Prevention and Control of Communicable Diseases;

- Food and Nutrition;
- Human Resource Development.

Currently, CCH-III (2008-12) is being finalized at the Regional policy level. The focus of CCH-III is on Chronic Diseases, Mental Health, HIV and AIDS and the cross-cutting support areas of Health Promotion and Education, Health Information Systems and Human Resource Development (PAHO, 2006).

Linkages of Regional Framework Initiatives

The Regional frameworks identified above provide windows of opportunities to exploit important linkages for addressing poverty, food and nutrition, health status and vulnerabilities. A useful way of conceptualizing these links and interactions is to view the frameworks as opportunities for finding common grounds to maximize mutual benefits. This is tantamount to policy coherence; that is, efforts directed at seeking synergies between policies of different sectors that support their common goals. This requires frequent dialogue, constructive engagement and coordinated action among policymakers from all the sectors to achieve the right balance among the various objectives and goals of the sectors. In effect, this supports the need for a multisectoral approach to address

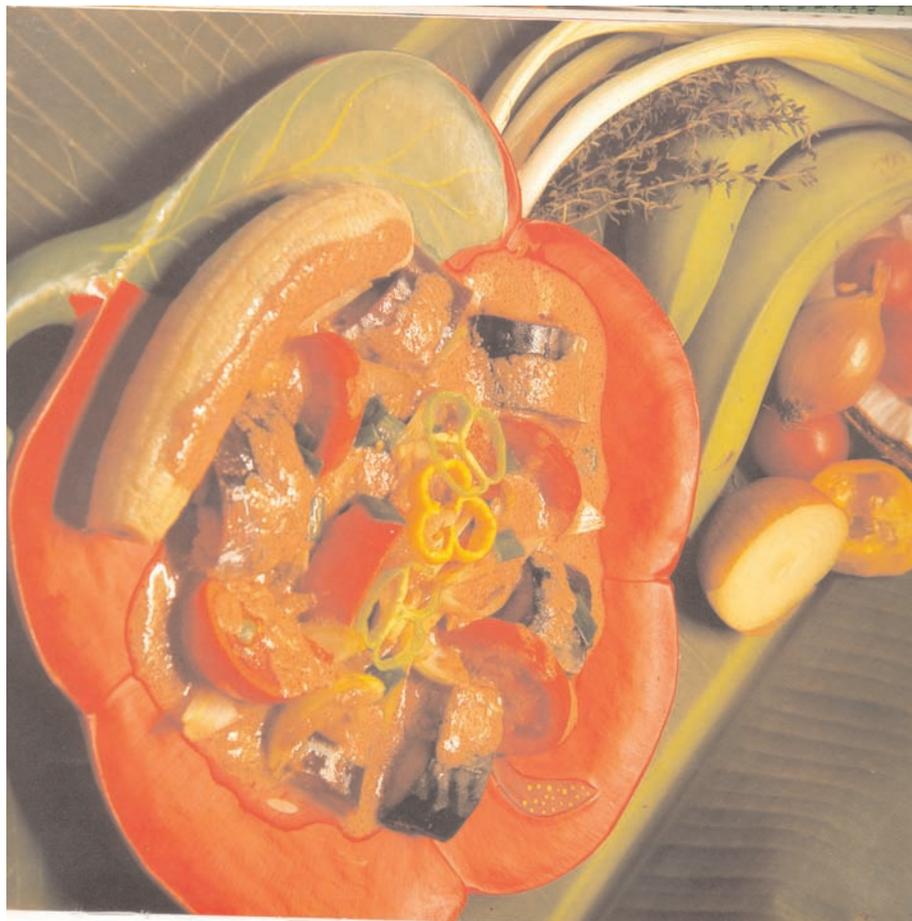
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the problems of food security, health status and sustainable development in Caribbean countries. This is an imperative to advance the food security agenda at both the national and Regional levels.

SUMMARY

This section presented information on six Regional frameworks advanced by Regional Governments. These

include: The Regional Food Plan, the Regional Transformation Programme for Agriculture, the Regional Negotiating Machinery, the CARICOM/FAO Regional Special Programme for Food Security (RSPFS), the Jagdeo Initiative and the Caribbean Cooperation in Health (CCH) Initiatives. These Regional initiatives are a platform for collective and Regional action designed to advance the socio-economic development of the Region.



Policies Affecting Vulnerabilities in Cariforum States

This section examines the existing national and Regional policy framework with emphasis on those macro-economic and sectoral policies that have the greatest impact on food security. It must be recognized at the outset that the Region is no longer being insulated from the changes occasioned by globalization and trade liberalization. Preferential trading arrangements have given way to open competition within the rules-based trading arrangements of the World Trade Organization (WTO). In addition, more stringent enforcement of regulations in trade-related areas such as intellectual property rights, application of biotechnology to food production and protection of biological diversity, place significantly more demands on the weak institutional and resource capacity of the entire CARIFORUM Region.

Earlier sections of this study presented data on malnutrition, poverty and non-communicable diseases as an integral part of the discussion on food security. It must be emphasized that, both Regionally and globally, malnutrition is usually two to three times higher among the poorest income quintile compared to those in the highest quintiles. Moreover, it impacts negatively on economic growth and perpetuates poverty mainly through (i) direct losses in productivity; (ii) indirect losses from poor cognitive function

and deficits in schooling; and (iii) increased health care costs. Further, it is estimated that GDP losses to malnutrition is 2-3 per cent and productivity losses to individuals are about 10 per cent of lifetime earnings (World Bank, 2006b). Reputable studies have concluded that nutrition interventions generate returns among the highest on development investments (Behrman, Alderman, and Hoddinott, 2004). Therefore, one way of breaking the intergenerational transfer of malnutrition is to prevent and treat malnutrition among pregnant women and children below two years of age. Further, interventions aimed at improving nutrition are a pro-poor strategy with potential to increase disproportionately the income-earning potential of the poor.

Against this background, any policy that is advanced to meet the ongoing challenges of food security, and by extension to improve health and nutrition in the Region, must take cognizance of the globalization process currently taking place and the historical and concrete conditions at the country level. Global conditions have underlying global causes and, in these circumstances policy interventions at the national level would have little success if they were pursued without due cognizance of the global/Regional causes and in isolation of global interventions.

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Similarly, the current food-security situation in the Region must be understood within a historical context and also with regards to the major reforms these countries have implemented over the past three decades.

The Global Context

Over the past forty years rapid changes at the level of the world economy (now referred to as globalization) have brought nations into an integral part of a common unifying global system with far-reaching and significant impact at the Regional, national and household levels. While globalization is believed to provide new opportunities, the process is known to present risks and to produce both winners and losers. To date, the benefits of globalization have been selective in developing countries. Moreover, for many countries in the Region, the coincidence of increasing poverty and globalization sustains an anxiety among various sections of the population that further lost opportunities are still to come. Despite the potential for positive effects, globalization can negatively impact food, nutrition and health in the Region in several ways:

(i) Trade expansion and aggressive marketing of certain foods could accelerate the shift in the structure of diets from traditional low-cost diets rich in fibre and grains to high-cost calorie-intense diets containing greater

proportions of sugars, oils, and animal fats, leading to increase in weight gain, obesity, and associated chronic diseases. While availability of staples has increased in the Region, a similar trend has been observed for sweeteners and fats.

(ii) The impact of globalization on nutrition also depends on the domestic policies of industrialized countries. Despite efforts to improve market access, developed countries still maintain trade-distorting policies and high tariffs and trade in products of particular importance to poor farmers in developing countries, thereby reducing the benefits of trade liberalization and of increasing globalization.

(iii) The current high levels of support that developed countries confer upon their domestic agriculture and their increasing concerns for food safety also make it extremely difficult for the Region to access these markets. Food safety standards are becoming more uniform across countries as globalization proceeds. A unilateral imposition of these standards could have several negative effects:

- For groups already at risk nutritionally, elevating these standards could mean compromising their food security.

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- These safety concerns of developed countries may further restrict market access for food products from developing countries, thus leading to loss of income.
- Developing countries' farmers may not be able to meet the standards because of absence of adequate institutions and infrastructure.
- Finally, the imposition of these higher standards on developing countries, in effect creating parallel market differentiation, could result in higher food prices for poor consumers.

Consequently, rather than separate units of analysis to be compared independently - diseases, food systems, media, corporations-Governments and institutions are now integrated and unified into global units - global diseases, global food systems, global media, etc. From this perspective, global conditions have underlying global causes and in these circumstances, policy interventions at the national level would have little success if they were pursued without due cognizance of the global causes and in isolation from global initiatives and interventions.

Country Context

The globalization process described above and the significant structural, economic and policy reforms that Regional Governments

have been undertaking over the past two decades have sparked paradigmatic shifts in development thinking as Government-led inward-looking development initiatives of the 1960s and 1970s ceded to more reliance on market forces and export orientation. The core of the new paradigm comprises:

- a shift from closed, protected, and highly subsidized nationally inward-looking markets towards open, competitive and less sub-sidized externally-oriented markets; and,
- significant reduction of state-sponsored economic activities, and a concomitant increase in economic activities by the private-sector, local governments, and non-governmental organizations.

These paradigmatic shifts in turn require fundamental policy and strategic changes for two main reasons. First, these shifts have dramatically altered the decision-making environment through:

- reduced distortions in the agricultural and external trading sectors;
- strengthened links between domestic and external economies; and,
- increased role of the private sector in the economy.

Second, under market-based, trade-driven regimes, it is increasingly being recognized that agriculture and the rural sector must become central to generating broad-based economic growth. This view contrasts with the era of import-substitution when

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agriculture was seen as a declining sector and not worthy of the kinds of support that were accorded to industry. It is now envisaged that agriculture can significantly contribute to trade, income and employment, while concurrently reducing poverty and food insecurity.

Against the background of the issues raised above, two key structuring elements must be emphasized with respect to addressing food security:

- first, food security has to be reconceptualized within the context of a dynamic agricultural sector that is interconnected not only to the rest of the economy, but also to external markets; and
- second, experiences in the Region and elsewhere suggest that food production alone cannot guarantee food security and nutrition. Indeed, there is compelling evidence to suggest that production-oriented agricultural initiatives are more likely to generate sustained and positive food security and nutritional outcomes when they incorporate the following four interconnected and synergistic dimensions of community life:
 - Integration of women's perspectives and priorities in planning food security interventions;
 - Educating families and communities about child and basic human nutrition;
 - Promoting crop diversification; and

- Promoting linkages among livelihood options.

Additionally, many factors, seemingly unrelated, impact on nutritional and health status of the population. For example, foods that are consumed are first made available through domestic and import sources. However, households' accessibility is a function of income, prices, marketing, distribution, etc. Moreover, good nutrition depends on access to adequate and nutritious foods, quality of diets, food preparation practices, educational levels, and age and gender distribution within the households. Given the health and nutrition problems that the region is currently experiencing, health must be an integral part of policies and strategies of several sectors of the economy. In this context, the promotion of inter-sectoral food and nutrition policies ensures that the various change agents and sectors participate fully in the food and nutrition planning process and policy coherence is maintained in the implementation for efficiency and cost-effectiveness.

At the country level, there are several reasons for low priority given to nutrition programmes. Malnutrition is not easily visible to families and they are usually unaware that mild and moderate malnutrition contributes substantially to death, disease and low intelligence. Hence, there is little demand for nutrition services by local communities, especially those that are poor and with little voice in public

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policy. Also, both Governments and international partners have been slow to recognize the high costs of malnutrition and the equally high benefits from nutrition investments. Further, the inter-sectoral linkages between food, nutrition and health are not usually pursued. In the past, the issues of health status, food security, diets, and agriculture and trade have been approached in the Region of the Americas as originating from disparate, unrelated sectors of the economy. However, there are strong links between and among these sectors and recognizing and acting upon them can contribute to the sustainability of development and to the enhancement of health status in the Region.

In the past, agriculture's food production objectives in the Region were organized around specific supply-side programmes with little attention given to the dynamics of the national and international market trends. Further, health and nutritional goals did not guide previous Regional and national food production initiatives. Moreover, national Governments effectively taxed agriculture through overvalued exchange rates, and the policy environment did not encourage rural entrepreneurship. Under market liberalization and export orientation regimes, agriculture has to be systematically linked to other sectors such as health, industry, trade and the environment. It is within this broader strategic perspective that agriculture

holds special importance as a contributor to economic growth and meeting food security. However, while Regional and global trade reforms may create opportunities for the rural sector, appropriate macro and sector-specific policies must be put in place to enhance agriculture's growth potential. In addition, the human capital base in agriculture has to improve to respond to high-valued cropping systems, market-oriented crops, land use in the best alternative, and cost effectiveness in production. Of equal importance, Regional food security in the context of the new paradigm is increasingly driven by demand-side factors. In this regard, knowledge of consumer needs is key to linking production capacities to domestic and international demands.

The imperatives of the global marketplace now force the natural resource-based Regional economies to assess their comparative advantages and undertake the required structural changes. Many analysts are of the view that the changes currently under-way offer new opportunities, but they also emphasize that producers and rural residents may lack the resources (skills, training, financial support) to adjust and take advantage of these new opportunities. Many small farmers and non-farm families are poorly equipped to gain the broad benefits that the new changes in agriculture bring as a result of the economic reforms and the globalization process. Of serious concern also is the fact that low-cost

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efficient producers from outside the Region can effectively penetrate these markets or expand their market share, to the detriment of domestic producers. Hence, it is imperative that the Region take an aggressive stance at making the internal structural reforms that are required to benefit from the globalization process. Adjustments to these new realities are considerable and involve efforts to acquire new skills, infrastructure and institutions, market intelligence and systems.

Macro Policy Issues

Several countries in the Region have had experience with the IMF/World Bank structural adjustment policies. These policies proved harsh on living conditions of poor and marginalized populations, and most countries are still implementing special programmes for these groups. Nonetheless, the policies have achieved some success in macro-stability, especially in realigning exchange rates and containing inflation. Most countries are pursuing these stringent monetary and fiscal policies of their own volition with the expectation to reactivate growth (World Bank, 2005b). A recent World Bank (2005) study ranked selected CARIFORUM coun-

tries according to their overall macro-economic performance¹ over the period 1990-2003 as shown in Figure 1. The top performers are Trinidad and Tobago, the Bahamas, and the Dominican Republic (before the recent crisis). The three weakest performers are St Kitts/Nevis, Jamaica and Dominica.

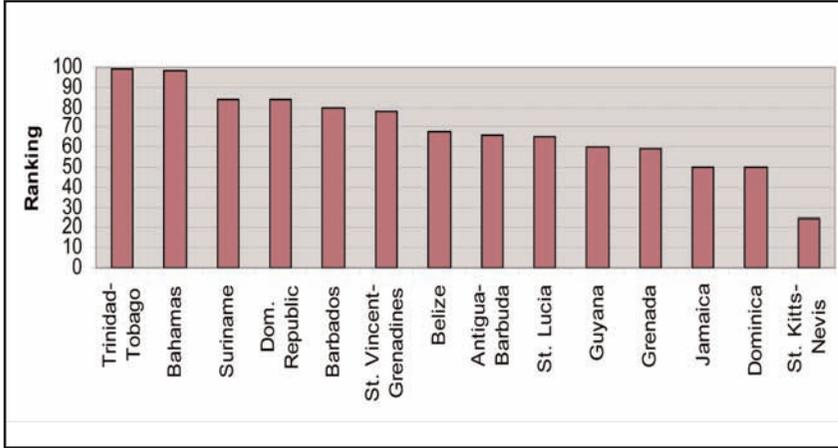
One troubling aspect of macro-economic performance in the CARIFORUM countries is the relatively high public debt, which has adverse consequences for fiscal policies. Table 1 shows the ratio of gross external debt to exports of goods and services. These ratios are high, and for several countries, the ratio has increased significantly in the recent 2002-04 period.

Many countries in the Region have begun implementing Poverty Reduction Strategy (PRS) initiatives.² According to the World Bank, these PRSs are country-driven, results-oriented, comprehensive, partnership-based and framed within a long-term perspective (World Bank, 2003). The development paradigm that underlines these PRSs is that rapid growth is a necessary, not a sufficient, condition for effective poverty reduction. Moreover, the World Bank recognizes that poverty and income inequality can

¹The index of macroeconomic performance combines the following variables: economic growth, total public debt, fiscal balance, inflation. Countries are ranked from 1 to 15 in each category, with the best performers receiving the highest score. The scores are then aggregated for each country and then normalized so that the scores for all countries fall between 1 and 100.

²Countries with PRS initiatives include Dominica, Grenada, Guyana, St. Lucia, St. Vincent and the Grenadines, and Haiti.

Figure 1
CARIFORUM – Relative Ranking on Macroeconomic Performance



Source: World Bank (2005b).

Table 1
CARIFORUM Ratio of Gross External Debt to Exports of Goods and Services

Countries/Years	1996/98	1999/01	2002/04
The Caribbean	71.3	61.7	68.0
Antigua/Barbuda	81.7	103.3	104.7
Bahamas	16.7	13.7	13.7
Barbados	36.3	40.7	54.7
Belize	26.7	96.0	139.3
Dominica	70.3	113.7	183.7
Dominican Republic	53.0	45.7	63.7
Grenada	66.0	68.3	196.0
Guyana	212.3	179.0	163.3
Haiti	325.7	239.3	273.7
Jamaica	97.0	101.7	128.3
St. Kitts/Nevis	70.0	115.7	185.3
Saint Lucia	38.3	53.3	80.7
St. Vincent/Grenadines	60.7	92.0	108.7
Suriname	0.0	0.0	70.0
Trinidad and Tobago	34.0	38.3	26.0

Source: World Bank (2005b).

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impede rapid growth and that inequalities in income, access to productive resources, basic social services, opportunities, markets and information can cause and exacerbate poverty.

PRs have been criticized for not paying sufficient attention to issues of sustainable livelihoods and the social dimensions of anti-poverty and gender strategies. Thin et al (2001) argue that most PRS papers separate the macroeconomic critique from the social policy directives and send the implicit message that growth is good for poverty reduction without discerning the differing impacts on poor or vulnerable groups.

A recent review of PRs in four OECs countries (Dominica, St Lucia, St Vincent and The Grenadines and Grenada) assessed the general awareness of the countries-as elaborated in their respective PRs-of the notions of vulnerability and the inclusion and use of strategies that addressed the reduction of vulnerability and strengthening of resilience, as applied to different groups in the respective countries (ECLAC, 2005). The review concluded:

The conceptual understanding of the notions of vulnerability was weak in all the PRs;

- The appreciation of vulnerability analysis was stronger for the economic sector and weaker for the environment sector. The weakest appreciation of vulnerability was for the social sector;

- The inclusion of any of the three dimensions of vulnerability (economic, social and environment), as part of the country's strategy response to poverty reduction-either to reduce susceptibility or build resilience-was weak in some countries and non-existent in others; and
- The appreciation of mechanisms to address the reduction of a country's overall vulnerability was found to be weak.

Policies and Food Security

Several countries in the Region still have farming systems that produce significant amounts of food to sustain traditional diets that featured roots, pulses and fruits. However, the processes of globalization and economic reforms are rapidly displacing these traditional diets and leading to health problems that impact significantly in term of costs on the health system. It is imperative that policy makers take a different approach to issues of food security, health and nutrition from that of the past. This means a radical departure from the received paradigm, which equated food security with food availability. It must be emphasized that, while sufficient food calories are available to meet recommended population goals in the Region, food security is being compromised through lack of access and excessive utilization/consumption of sweeteners and fats/oils. Against this observation, therefore, a new paradigm

is required, with a multi-sectoral approach to solving the food, health and nutritional problems of the Region.

Moreover, declining levels of foreign direct investment and financial resources, the climate of increased uncertainty, high external public debt, and macroeconomic instability have far reaching implications for food security in the Region (CaRAPN, 2006). Consequently, CARIFORUM countries must develop strategic policy responses to sustain food and nutrition security and reduce poverty. These include policies relating to agriculture, trade, health and nutrition, macro-economic development and social development.

With respect to food security, CARIFORUM countries have traditionally followed export-led growth (based on primary commodities) and import substitution as economic models. While these models have resulted in some progress in the Region, neither has provided a sound solution to food security. In the context of the current rapidly changing economic, social and ecological environments, the Region will need to identify the best options for long-term food security.

CARIFORUM countries that rely on domestic food production show little evidence of chronic food shortage. Those other countries that rely on agricultural trade experience food shortages when shipping links are disrupted (e.g., after September 11). It should be noted that 13 CARIFORUM

countries are net food importers (World Bank, 2005b), indicating food supply dependence and vulnerability and high food import bills.

Small economies have limited possibilities for exploiting economies of scale and are hindered by their inability to supply markets with adequate volumes of high-quality products on a regular basis. CARIFORUM countries such as Guyana, Belize, Suriname and other economies with the required land and agricultural resources do have the potential to exploit low volume export niche markets for value-added products. However, the challenge is to develop the human resources and skills for ensuring efficient production, processing, certification, distribution and marketing of products that require adherence to specific standards.

Household food security in the Region (mainland and island economies) is based on two distinct systems, viz., the rural and urban systems. In rural systems, access to food via subsistence and commercial production is determined by access to arable land, fishing grounds, etc. In urban systems food access is determined by income and prices and is heavily dependent on imports. In both cases, poverty is a main constraint to food security. Consequently, improving access requires different strategies for urban and rural dwellers. Interventions are therefore required to reconcile competition for land and labour through linkages among economic sectors, namely agriculture

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and tourism, and the revitalization of healthy food systems.

Rural income generation at household and community levels has a strong impact on nutritional security. In the Region, where nutritious food is available, disadvantaged families often spend their time in low-income activities (low-paying odd jobs, street-corner sales, etc), leaving little time to prepare nutritious meals. Some sell their vegetables to obtain income and satisfy other family needs, including poor-quality food. In both cases, income is traded for food that is poor in nutrition. Households and agricultural enterprises require innovative livelihood approaches to escape poverty, remain profitable and cope with risk. Specific support should be given to enable vulnerable and poor groups to increase their levels of food security through better-performing traditional food systems and other income-generating activities.

One of the most serious food security concerns in the Region is long-term sustainability, especially at community and household levels. Traditional food systems have proven to be effective in mitigating disasters in risky farming environments. Small-scale traditional systems, including artisanal fisheries

and non-grain starchy staples, have been contributing, and continue to contribute to house-hold food security. The erosion of traditional cropping systems and of secure rights to land has contributed to increasing poverty, malnutrition and unsustainable urbanization. The contribution of small-scale enterprises to national development and poverty reduction ought to be recognized, with a view to allocating more resources in their support. Identifying and upgrading local skills and traditional knowledge with modern scientific guidance can offer cost-effective solutions for renewing traditional food systems. Additionally, Praedial larceny must be addressed since it is one of the major deterrents to agriculture enterprise as a livelihood.

Summary

This section examined the existing national and Regional policy framework with emphasis on those macro-economic and sectoral policies that have the greatest impact on food security. It must be recognized at the outset that the Region is no longer being insulated from the changes occasioned by globalization and trade liberalization.

Key Issues for Programming and Policy Options

Undernutrition and nutrition-related diseases are the main causes of death and ill-health in the CARIFORUM countries. In turn, these are determined by factors that are (i) food-related (e.g., food availability, access and consumption/utilization); (ii) health-sector related (e.g., water and sanitation, food safety, health care services, including early childcare and development); and (iii) multi-sectoral (e.g., income distribution, accessibility to health care, poverty). To address the food and nutrition problems in the Region effectively, specific actions/interventions would be required. These actions cannot be posed as “quick-fix” solutions but rather as comprehensive and long-term in nature and involving the participation of all stakeholders, including the private sector and civil society and partnerships among regional and international agencies. Some specific actions are listed below.

National Food and Nutritional Goals

Countries must establish national food and nutritional goals so that their agriculture and food systems can deliver adequate and nutritionally appropriate quantities of food, especially to low-income and vulnerable groups. These goals must

be an integral part of National Food Policies, National Plans of Action for Food and Nutrition Security (NPANS) and multi-sectoral coordinating mechanisms (e.g. Food Commissions, Food Policy Committees, etc.) aimed at improving household food security. This action is premised on the interaction between food security, health status and food policy and justifies a multi-sectoral approach across different governmental and non-governmental institutions, especially those related to food production, trade, nutrition, health, and social and economic development.

This agriculture-nutrition-health orientation derives from the two observations. First, in terms of economically active persons in agriculture¹ and rural population, agriculture in CARIFORUM countries is a very important source of income, employment and food. Second, nutrition-related chronic diseases are major causes of death, are shown to cut across socio-economic, spatial and demographic lines, and are associated with a sedentary life style and changes in diets which can be linked to domestic and import food policies. Countries therefore need to support multi-sectoral interventions that would:

¹With the exception of Bahamas and Barbados.

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- Reduce diets high in fats and sugars in total energy intake;
- Increase intakes of fruits and vegetables in diets;
- Reduce relative food energy from animal sources;
- Monitor food imports relative to health goals, and
- Utilize nutrient-cost methodology to develop a food-price policy that takes into account all components of food security (i.e. availability, accessibility and biological utilization of food).

Micronutrient Supplementation

In most countries anaemia prevention and control programmes do exist. However, these programmes are in dire need of expansion to increase and sustain coverage of beneficiaries. Additionally, better targeting is required, especially among children who require complementary foods, in particular:

- Provision of iron supplements (at schools and clinics); and
- Iron-fortified food at day-care centres, children's homes, and clinics, and in school-feeding programmes.

Policy Planning and Coordination

Given the food security issues discussed in this issue, policy planning and coordination must be important mechanisms for deliberate and focused action directed at addressing matters that have significant societal consequences. For

resource-poor countries, planning and coordinating inter-sectoral policies are important because such policies allow for prioritization and, when formulated with close attention to strategic actions, provide guidance to decision-makers at all levels on how best to allocate scarce resources. Further, they help to ensure that capacity and resources are in place to implement strategic actions to attain goals set out in the policies. Finally, they are necessary for coordinated, effective action on a large scale, such as achieving food and nutrition security in the Region, and they provide various actors (private sector, NGOs, international donors, etc.) with a means of prioritizing their own actions.

In the past, agriculture's food production objectives in the Region were organized around specific supply-side programmes with little attention given to the dynamics of the national and international market trends. Further, health and nutritional goals did not guide previous regional and national food production initiatives. Under market liberalization and export orientation regimes, agriculture has to be systematically linked to other sectors such as health, industry, trade and the environment. Trade is particularly relevant because of its historical and continued link as a major source of income and food imports in determining food security outcomes in the Region (for a elaboration on

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the food security-trade links see Ford, dell'Aquila and Conforti, 2007).

Within this area also is the need for social policy to promote social-assistance strategies such as safety nets to reach the poor and vulnerable. Current thinking is moving towards the provision of social protection as a governmental obligation and a right of persons. Institutions such as the World Bank, IMF, etc., are recognizing the fact that international economic integration is leaving nation states--especially poor nation states - with less power to regulate the relationship between capital markets and levels of budgetary support for human development (Norton, Conway and Foster, 2002). The rights dimension to social protection in the developing world has become particularly pertinent in the context of globalization, which is seen to result in new, unfamiliar exposure to risk for many.

Natural Resource and Environmental Sustainability

In terms of both frequency of occurrences and potential to inflict

damage, natural disasters are especially pronounced in the Region. There are no uniform solutions to cope with environmental degradation, since different countries have different levels of environmental degradation and response mechanisms in place. However, the information presented earlier suggests that CARIFORUM countries could:

- strengthen their environmental departments;
- intensify the monitoring of degrading environmental effects on a Regional and sub-Regional basis;
- take environmental impact assessments and land-use planning seriously;
- encourage partnerships between private sector and local communities to manage and financially support environmental assets such as national protected areas, beaches, and coastal waters (reefs); and
- undertake reforestation of fragile areas.

CAJANAQUOTE

“The primary role of food guides, whether or food guides, whether in the United States or around the world, is to communicate an optimal diet for overall health of the population”.

Food Insight
February, 1999

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Summary and Conclusions

Cajanus

Vol 41, No. 2, 2008

CARIFORUM countries are recognized as Small Island Developing States (SIDS) by the United Nations. Their special characteristics make these countries particularly vulnerable to food insecurity. Factors and conditions impacting on vulnerability relate to the economic, the social and the environmental. Economic vulnerability includes, *inter alia*, a high degree of openness of the economies, indicated by the high proportion of total trade (imports plus exports) in GDP, volatility of income and high concentration (*i.e.*, limited diversification) ratios in exports and imports. Social vulnerability in CARIFORUM countries takes expression in several forms, including (i) the brain drain; (ii) educational performance and health services that have not kept pace with the requirements of a changing Region; and (iii) issues facing youths such as crime, unemployment and HIV/AIDS. CARIFORUM countries are also prone to natural hazards that are frequent and that inflict losses in terms of deaths and significant damage to property and income-generating assets.

The engine of growth in CARIFORUM countries has shifted over the years from agriculture to services. However, agriculture is still an important sector in these economies as a source of food, export earnings and livelihoods for relatively large

proportions of the Regional population in rural areas. However, the Region is no longer being insulated from the changes occasioned by globalization and trade liberalization. Preferential trading arrangements are now being replaced by open competition and rules-based trading arrangements. In addition, more stringent enforcement of regulations in trade-related areas, such as intellectual property rights, application of biotechnology to food production and protection of biological diversity, place significantly more demands on the weak institutional and resource capacity of the entire CARIFORUM Region.

Against this background, several Regional frameworks have been advanced that have potential to respond to these changes as well as other areas of vulnerability in these economies. The Regional initiatives discussed in this paper include: The Regional Food Plan, the Regional Transformation Programme in Agriculture, the Regional Negotiating Machinery, the CARICOM/FAO Regional Special Programme for Food Security (RSPFS), the Jagdeo Initiative and the Caribbean Cooperation in Health (CCH) Initiatives. Several of these programmes are agriculture-related and have been designed to increase Regional food security, strengthen agriculture's own development, and enhance the sector's

capacity to contribute to national and Regional development.

This report posed food security as an integral part of a process of nutrition and health development which embodies several major components – food availability, household access, nutritional adequacy (consumption/biological utilization and care practices) and the stability of the three components. Regionally, total food caloric availability (calories/caput/day) has been increasing since the 1960s, and is in excess of Recommended Population Goals (RPG). The supply of fruits and vegetables, though increasing sharply over successive decades, consistently fell below RPG throughout the review period, with only a few countries in excess of RPG. Fats and sweeteners availability is above RPG and this is a concern in the Region given increasing availability. The Region's food import bill was US\$1.553 billion in 1995 and US\$2.409 billion in 2004, an increase of 55.1 per cent in nine years. With the exception of Belize and Guyana, the Region is a net importer of food.

In terms of accessibility, several core indicators were analysed. These include hunger, minimum wage, unemployment, poverty and income inequality, social safety nets and food aid. Hunger or food deprivation or undernourishment increased in Dominica and the Dominican Republic and remained fairly uniform for Barbados over the years 1995-2003. Although food deprivation decreased

for all other countries, the total number of persons is relatively high-7.296 million persons were under-nourished in 1990-92, 7.220 million in 1995-97 and 6.686 million in 2001-03. Estimates of a low-cost nutritionally balanced basket of foods in relation to the minimum wage suggested increased accessibility to food in countries for which data were analysed. However, unemployment, poverty and income inequality in the Region could run counter to this general finding. Official unemployment among thirteen CARIFORUM countries between 2000 and 2005 ranged from 8 to 23 per cent and Gini coefficients indicated relatively high levels of income inequality in the Region, in some countries among the highest in the world.

Traditionally, but especially during the period of structural adjustments in the Region, social safety nets have been an important public policy mechanism to assist poor and vulnerable groups. Important lessons from social safety net programmes include: (i) Need to minimize administrative costs and leakages of benefits of programmes; (ii) "Conditional transfers" appear to have greater outcome effects compared to unconditional transfers; (iii) There is need for effective targeting; and finally (iv) Ultimately, Governments need to create the structural underpinnings of the economy - especially employment opportunities - that will eliminate the need for many social safety net programmes.

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Undernutrition exists in the Region but is not as severe as in other parts of the world. For most countries in the Region for which trend data are available, the rates of undernourished children under five years old have been decreasing over the past decade. Anaemia among children is the most common micronutrient deficiency in the Region. Nutrition related non-communicable diseases (NCDs)-diabetes, high blood pressure, stroke, heart diseases, and some forms of cancer-are the major public health problems and account for most deaths in the Region. A major risk factor in these diseases is obesity, which is prevalent in the Region. The highest proportion of obesity is among adults 35 years and older. However, lower age groups-18-34-also show obesity rates that range between 8-20 per cent. Surveillance data on children and adolescents also show that children overweight and obese account for up to 15 per cent of this group in various countries.

The information presented in this report leads to the conclusion that food security in the Region is compromised not by lack of food availability but by inadequate access to foods and dietary patterns that would positively impact on nutritional status. The food, health and nutritional concerns that have been raised in this paper were brought into sharp focus by data regarding the nutritional deficiencies, diet imbal-

ances and general deteriorating health status of large proportions of people in the Region, especially people who are in vulnerable situations.

Most CARIFORUM countries are pursuing stringent monetary and fiscal policies of their own volition with the expectation of reactive growth. A ranking of selected CARIFORUM countries according to their overall macroeconomic performance shows that the top performers were Trinidad & Tobago, the Bahamas, and the Dominican Republic with another five countries recording fairly acceptable scores. While the achievement of macroeconomic stability is a laudable goal, one troubling development in the CARIFORUM countries is their relatively high public debt. This has adverse consequences for fiscal policies and especially social programmes that are needed in the context of high unemployment and poverty

Finally, this report suggested some key programming and policy options to address the food and nutrition problems in the Region. The suggested actions should not be seen as "quick-fix" solutions but rather as comprehensive and long-term in nature and involving the participation of all stakeholders, including the private sector and civil society and partnerships among regional and international agencies.

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